REPORT RESUMES

ED 015 263 VT 003 260

NATIONAL VOCATIONAL-TECHNICAL EDUCATION SEMINAR ON OCCUPATIONAL MOBILITY AND MIGRATION. CENTER SEMINAR AND CONFERENCE REPORT, NUMBER 2.

BY- BEARD, H.G.
NORTH CAROLINA UNIV., RALEIGH, N.C. STATE UNIV.
REPORT NUMBER BR-5-1005-CR-2 PUB DATE 66
CONTRACT OEC-5-85-107
EDRS PRICE MF-$1.00 HC-$9.84 244P.

DESCRIPTORS- *SOCIAL MOBILITY, *MIGRATION PATTERNS, *LABOR FORCE, EMPLOYMENT PATTERNS, EDUCATIONAL NEEDS, EMPLOYMENT TRENDS, *VOCATIONAL EDUCATION, ACADEMIC ACHIEVEMENT, ENROLLMENT RATE, OCCUPATIONS, UNEMPLOYMENT, ANNOTATED BIBLIOGRAPHIES, BIBLIOGRAPHIES, TECHNICAL EDUCATION, CONFERENCES, NATIONAL DEMOGRAPHY, *OCCUPATIONAL MOBILITY, EMPLOYMENT PROJECTIONS, SOCIOECONOMIC STATUS, OCCUPATIONAL CHOICE,

THIRTY-THREE STATE-LEVEL LEADERS WITH RESEARCH RESPONSIBILITIES IN VOCATIONAL-TECHNICAL EDUCATION FROM 23 STATES AND TERRITORIES ATTENDED THE SEMINAR WHICH HAD THE OBJECTIVES TO -- (1) SECURE A BETTER UNDERSTANDING OF THE PROBLEMS AND DECISIONS FACING EDUCATIONAL POLICYMAKERS, PROGRAM PLANNERS, ADMINISTRATORS, AND TEACHERS, (2) DEVELOP A CONCEPTUAL FRAMEWORK FOR STUDYING SOCIOECONOMIC MOBILITY, (3) DEVELOP AN UNDERSTANDING OF THE STATUS OF RESEARCH IN LABOR SUPPLY AND DEMAND, MIGRATION, AND SOCIOECONOMIC MOBILITY, (4) BECOME ACQUAINTED WITH APPROPRIATE RESEARCH RATIONALES, DESIGNS, AND METHODOLOGIES, (5) IDENTIFY PROBLEM AREAS FOR RESEARCH, (6) IDENTIFY SPECIFIC RESEARCHABLE PROBLEMS, (7) ACQUIRE AN UNDERSTANDING OF THE RESOURCES AVAILABLE RELATIVE TO RESEARCH IN OCCUPATIONAL MOBILITY AND MIGRATION, AND (8) DEVELOP LINES OF COMMUNICATION TO EXPLOIT AVAILABLE RESOURCES TO CONDUCT RESEARCH AND TO DISSEMINATE RESEARCH FINDINGS. PAPERS PRESENTED WERE (1) "MANPOWER ADJUSTMENTS AND OCCUPATIONAL EDUCATION," BY E. WALTON JONES, (2) "MANPOWER SUPPLY IN THE UNITED STATES," BY HOWARD ROSEN, (3) "MANPOWER REQUIREMENTS BY INDUSTRY AND OCCUPATIONS," BY SOL SWERDLOFF, (4) "DIFFERENTIALS IN SPATIAL MOBILITY," BY EVERETT S. LEE AND G. PUTNAM BARBER, (5) "THE SOCIAL-PSYCHOLOGICAL DIMENSIONS OF OCCUPATIONAL MOBILITY," BY WILLIAM P. KUVLESKY, AND (6) "UNDERSTANDING SOCIAL MOBILITY," BY SELZ C. MAYO. EACH PAPER WAS THE BASIS FOR DISCUSSION BY A WORK GROUP. REPORTS OF THESE DISCUSSIONS ARE PRESENTED. THE APPENDIX CONTAINS THE SEMINAR PROGRAM AND A BIBLIOGRAPHY ON MANPOWER SUPPLY AND DEMAND. (EM)

ED015263

AUG 28 1967

NATIONAL VOCATIONAL-TECHNICAL EDUCATION SEMINAR ON OCCUPATIONAL MOBILITY AND MIGRATION

H. G. BEARD
SEMINAR CHAIRMAN

DEPARTMENTS OF AGRICULTURAL EDUCATION AND SOCIOLOGY AND ANTHROPOLOGY
NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

SPONSORED BY
CORNELL UNIVERSITY
AND
THE CENTER FOR OCCUPATIONAL EDUCATION

Center Seminar and Conference Report No. 2

CENTER FOR OCCUPATIONAL EDUCATION
NORTH CAROLINA STATE UNIVERSITY AT RALEIGH
1966

VT003260

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION—BUREAU OF RESEARCH
DIVISION OF ADULT AND VOCATIONAL RESEARCH
PROJECT NO. DAVR 5-1005, CONTRACT NO. OE 5-85-107

CENTER FOR OCCUPATIONAL EDUCATION
RESEARCH-DEVELOPMENT-TRAINING

The Center for Research, Development, and Training in Occupational Education was approved and established as a Research and Development Center in 1965, under the provisions of Section 4(c) of the Vocational Education Act of 1963. The initial approval was for 20 months, ending 31 January, 1967. The proposal for the continuation of the Center for five years, beginning 1 February, 1967, has been approved and the continuation program is in operation. The total program, which has emphasized research in crucial problems in occupational education since its inception, has been divided into five complementary programs, including a research program, an evaluation program, a research development program, a research training program (in occupational education), and a services and conferences program. The Center is designed and organized to serve the nation, with special orientation to the southern states.

The Center is part of the program conducted under the auspices of the Educational Resources Development Branch, Division of Adult and Vocational Research, Bureau of Research, Office of Education, U. S. Department of Health, Education and Welfare. The Center is located at North Carolina State University at Raleigh, and has been established as an integral unit within the University. The program of the Center cuts across the Schools of Agriculture and Life Sciences, Education, Liberal Arts, and Physical Sciences and Applied Mathematics at North Carolina State University at Raleigh. Cooperating and participating Departments include the Department of Adult Education, Agricultural Education, Economics, Experimental Statistics, Industrial and Technical Education, Occupational Information and Guidance, Politics, Psychology, and Sociology and Anthropology.

THE CENTER SERVICES AND CONFERENCES PROGRAM

The Services and Conferences Program of the Center is established to facilitate the coordination of the program of the Center with other agencies and individuals interested in research, development and evaluation in occupational education; to arrange for consultation assistance with Center staff members for those who need and request it; and to disseminate the products of research and related activities of the Center. In addition, the Program has provided and will continue to provide assistance in planning and conducting conferences, workshops, seminars, and institutes which either are related to the research, development and training programs of the Center, or are related to the interests of other agencies which are relevant to the program of the Center. Reports of the proceedings of these conferences, workshops, seminars and institutes will be published in the CENTER SEMINAR AND CONFERENCE REPORT Series, under the auspices of the Services and Conferences Program. For additional information regarding the Services and Conferences Program, please write to:

Dr. Charles H. Rogers, Coordinator
Services and Conferences
Center for Occupational Education
P. O. Box 5082 (2100 Hillsborough Street)
North Carolina State University at Raleigh
Raleigh, North Carolina 27607

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

NATIONAL VOCATIONAL-TECHNICAL EDUCATION SEMINAR ON OCCUPATIONAL MOBILITY AND MIGRATION

Project No. 5-1005
Contract No. OE-5-85-107

H. G. BEARD
Seminar Chairman

1966

****

The seminar reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

****

Center Seminar and Conference Report No. 2

CENTER FOR OCCUPATIONAL EDUCATION
North Carolina State University at Raleigh
Raleigh, North Carolina

PREFACE

The first National Seminar on Research in Vocational Education was held at Purdue University, February 24 to March 1, 1963. This seminar was sponsored by the Industrial Education Curriculum at Purdue University in cooperation with the Division of Vocational and Technical Education of the U. S. Office of Education and the Research Committee of the American Vocational Association. The planning committee for this first seminar included H. S. Belman, Purdue University, Seminar Chairman; F. J. Woerdehoff, Purdue University, Seminar Co-Chairman; John J. Paterson, Purdue University; Merle Strong, Division of Vocational and Technical Education, U. S. Office of Education; and Rupert N. Evans, University of Illinois, Chairman, Research Committee, American Vocational Association. Participants in the first seminar included approximately fifty researchers in vocational education selected to represent the several services of vocational education and the four administrative regions.

From the beginning at Purdue University, the seminar program has expanded each year, through the cooperation of the Division of Vocational and Technical Education of the U. S. Office of Education and the Research Committee of the American Vocational Association. Three seminars were held in 1964--one at the University of Illinois, one at Pennsylvania State University, and one at The Ohio State University. In 1965, the University of Illinois conducted four seminars--one at the University of Nebraska, one at Michigan State University, one at the University of Minnesota, and one at The Ohio State University--pursuant to a contract with the U. S. Office of Education under the provisions of Section 4(c) of the Vocational Education Act of 1963. Rupert N. Evans, Dean of the College of Education and of the University of Illinois and Chairman of the Research Committee of AVA was the project director.

North Carolina State University at Raleigh, through the Center for Occupational Education, was privileged to join with The Ohio State University, the University of Georgia, the University of Illinois, Colorado State University, and Cornell University to offer six research seminars in 1966, conducted by Cornell University through a contract with the U. S. Office of Education under the provision of Section 4(c) of the Vocational Education Act of 1963. The project director was C. W. Hill, Professor of Agricultural Education at Cornell University, and a member of the Research Committee of AVA. Hence, over a four year period, 14 seminars have been conducted to provide training to more than 300 researchers in vocational and technical education.

The Occupational Mobility and Migration Seminar provided researchers in vocational and technical education not only the opportunity to become acquainted with research in the area, but also to identify problems which researchers in vocational-technical education might consider. Stimulating presentations were made by the consultants which included E. Walton Jones of North Carolina State University at Raleigh, Howard Rosen and Sol Swerdloff of the U. S. Department of Labor, Everett S. Lee of the University of Pennsylvania, William P. Kuvlesky of Texas Agricultural and Mechanical University, and Selz C. Mayo of North Carolina State University at Raleigh.

Acknowledgement is due H. G. Beard of North Carolina State University at Raleigh, who was seminar chairman, and to the members of the planning committee, which included H. M. Hamlin, C. Horace Hamilton, E. Walton Jones, and Charles E. Lewis, all of North Carolina State University at Raleigh, for the planning and overall direction of the seminar. Appreciation also is expressed to C. W. Hill for his leadership, assistance, and cooperation in conducting this seminar.

John K. Coster, Director
Center for Occupational Education

TABLE OF CONTENTS

Page

Introduction - 1

Objectives of the Seminar - 5

Participants in the Seminar - 6

Seminar Planning Committee and Consultants - 9

Papers on Occupational Mobility and Migration - - - - - - - - - - - 10

  Manpower Adjustments and Occupational Education by Dr. E. Walton Jones - - - - - - - - - - - - - - - - - 10

  Manpower Supply in the United States by Dr. Howard Rosen - 66

  Manpower Requirements by Industry and Occupation by Mr. Sol Swerdloff - - - - - - - - - - - - - - - - - 95

  Differentials in Spatial Mobility by Dr. Everett S. Lee and G. Putnam Barber - - - - - - - - - - - 120

  The Social-Psychological Dimensions of Occupational Mobility by Dr. William P. Kuvlesky - - - - - - - - - 160

  Understanding Social Mobility by Dr. Selz C. Mayo - - - - - - - - 183

Reports of Seminar Work Groups - - - - - - - - - - - - - - - - - - - 200

Appendix - 228

  Seminar Program - 229

  Basic Sources of Information on Manpower Supply and Demand - - - - - - - - - - - - - - - - - - - 233

INTRODUCTION

This seminar on Occupational Mobility and Migration was a part of a continuing National seminar program to strengthen the research base of vocational and technical education in the United States. Thirty-three state level leaders with research responsibilities in vocational-technical education from 23 states and territories attended the seminar. The national seminar program, begun in 1963 under the aegis of the Research Committee of the American Vocational Association, was comprised of the following seminars in 1966:[1]

Development and Coordination of Research by State Research Coordinating Units, Ohio State University

Curriculum Development, University of Georgia

Tests and Measurements in Research, Colorado State University

Occupational Mobility and Migration, North Carolina State University

Research Design, Cornell University

Curriculum Evaluation, University of Illinois

The seminars held in 1966 were conducted cooperatively by Cornell University and the universities named above and were financed through a contractual arrangement with the United States Office of Education. Dr. C. W. Hill of Cornell University served as national coordinator of the 1966 seminars.

The planning committee for the Occupational Mobility and Migration seminar was comprised of representatives for the fields of vocational education, sociology, and economics. The seminar was planned by this committee and by consultants selected by the planning committee to participate in the seminar. These consultants represented the fields of labor economics, demography, social psychology and sociology (social mobility). A basis for planning was established in a planning meeting held on January 21, 1966. The seminar was held on April 18-22, 1966.

---

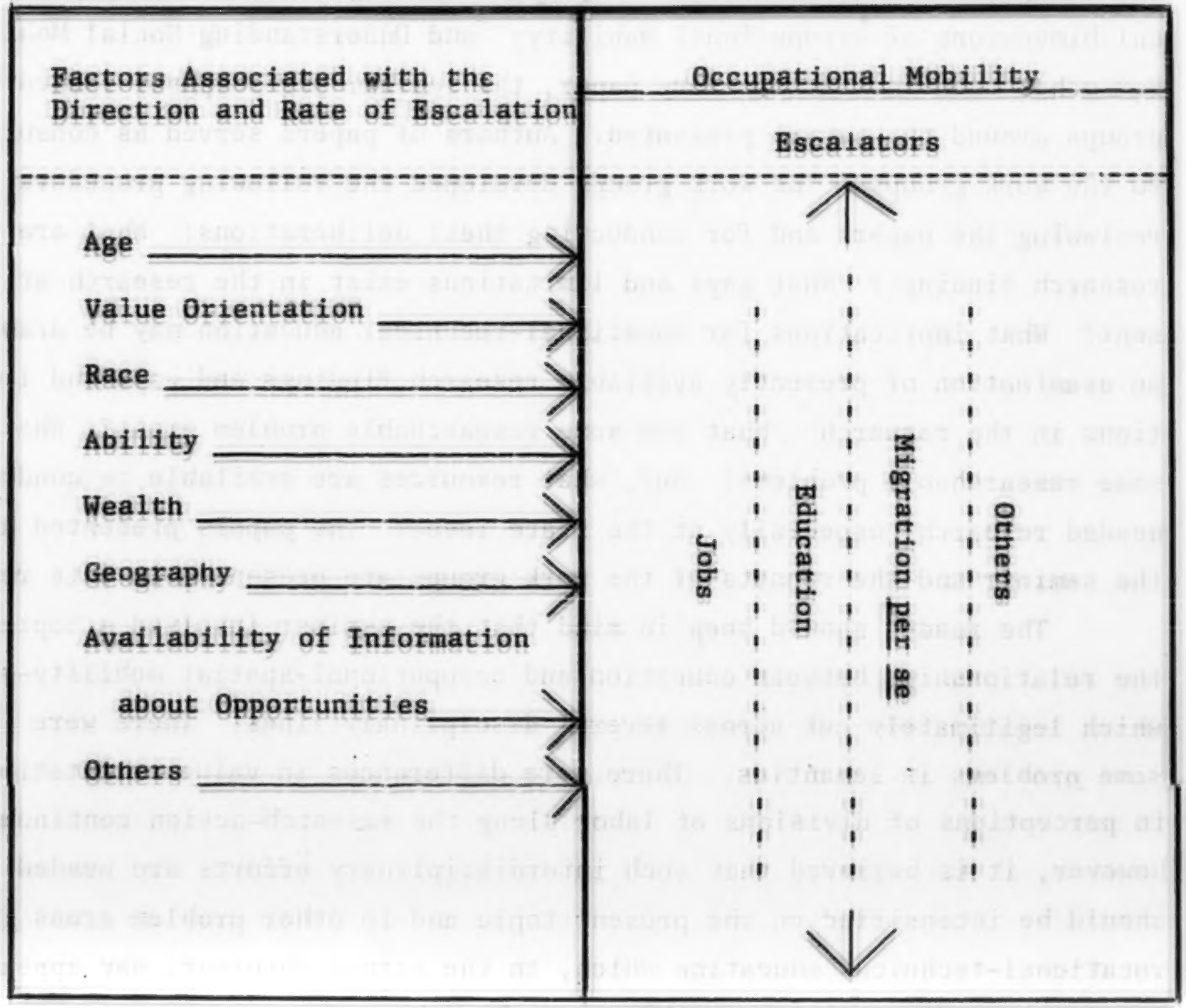
[1] For an account of the historical development of the national seminar program and for an evaluation of the seminars held in 1966, see Charles W. Hill and Douglas C. Towne, The Further Development of Research Competencies of Personnel in Vocational Education Research and Development, Final Report of the United States Office of Education Project No. ERD 444-65, Ithaca: Cornell University (1966).

It was decided at the planning meeting that papers would be read by the consultants and that the papers would serve as a beginning point for the work of the participants and consultants at the seminar. Further, it was decided that every effort should be made to profitably relate vocational-technical education and occupational-spatial mobility in the preparation of the papers. For the work of the seminar, occupational mobility was defined as being the vertical dimension and spatial mobility, or migration, the horizontal dimension of the mobility problem. Two questions were encountered by the seminar planners in attempting to accomplish the articulation of content across disciplines: how may the relationships between vocational-technical education and occupational-spatial mobility be conceptualized? and What substantive questions should be given priority in the papers and in planning for the work of the participants and consultants in the seminar?

On the question of conceptualizing the relationships between education and occupational-spatial mobility, it was decided that movement of people on the occupational or, in fact, socioeconomic scale should be the "dependent variable"; that this movement occurs by the use of "escalators" which include education, migration per se, job availability, etc.; and that there are certain factors associated with escalation that serve as facilitators for or impediments to the effective use of escalators including age, value orientation, race, ability, wealth, geography, information, etc. This conceptualization, again, was designed to facilitate disciplinary articulation. It is shown diagramatically on the following page.

Concerning the substantive questions to be given priority in the seminar papers and in planning for subsequent work at the seminar, it was decided that those conceptual and empirical aspects of occupational mobility should be emphasized which have direct relevance to policy-making and program planning in vocational-technical education. Thus, a broad research orientation was agreed upon by the seminar planners. The following emphases were suggested to guide the development of seminar papers: a critical review of research findings and the development of implications of these findings for policy-making and program planning in vocational-technical education; identification of gaps and limitations in research; and suggestions for the production and utilization of research findings including divisions of labor across and within disciplines along the research-action continuum.

Some Variables to be Examined in Understanding Occupational Mobility. *



* Basically, occupational mobility may be viewed as social mobility, and the term "escalators" refers to the means by which people move up or down the socioeconomic scale.

Papers were presented in the seminar on the following topics: Manpower Adjustments and Occupational Education (an introductory paper); Manpower Supply in the United States; Manpower Requirements by Industry and Occupation; Differentials in Spatial Mobility; the Social-psychological Dimensions of Occupational Mobility; and Understanding Social Mobility. For other than the introductory paper, the seminar participants formed work groups around the papers presented. Authors of papers served as consultants to the work groups. The work groups developed the following procedure for reviewing the papers and for conducting their deliberations: What are the research findings? What gaps and limitations exist in the research at present? What implications for vocational-technical education may be drawn by an examination of presently available research findings and gaps and limitations in the research? What are some researchable problem areas? What are some researchable problems? And, what resources are available to conduct needed research, especially at the state level? The papers presented at the seminar and the reports of the work groups are presented in this report.

The reader should keep in mind that the seminar involved a topic--the relationships between education and occupational-spatial mobility--which legitimately cut across several disciplinary lines. There were some problems in semantics. There were differences in value orientations and in perceptions of divisions of labor along the research-action continuum. However, it is believed that such interdisciplinary efforts are needed and should be intensified on the present topic and in other problem areas in vocational-technical education which, to the casual observer, may appear to be less interdisciplinary in character than the present topic.

H. G. Beard
Seminar Director

OBJECTIVES OF THE SEMINAR

1. To secure a better understanding of the problems and decisions facing educational policymakers, program planners, administrators and teachers.
2. To develop a conceptual framework for studying socio-economic mobility.
3. To develop an understanding of the status of research in labor supply, labor demand, migration, and socio-economic mobility.
4. To become acquainted with appropriate research rationales, designs, and methodologies.
5. To identify problem areas for research.
6. To identify specific researchable problems.
7. To acquire an understanding of the resources available, particularly at the state level, to conduct research in occupational mobility and migration.
8. To begin to develop lines of communication to exploit available resources to conduct research and to disseminate research findings.

PARTICIPANTS

John M. Adams, Jr., Area Supervisor, Agricultural Education, London, Kentucky.

Arch B. Alexander, Assistant State Coordinator, Vocational-Technical Education, State Board for Vocational Education, Stillwater, Oklahoma.

Philip G. Baird, Program Planning Specialist, State Department of Education, Research Coordinating Unit, Springfield, Illinois.

H. E. Beam, President, Caldwell Technical Institute, Lenoir, North Carolina.

Irene Beavers, Associate Professor, Department of Home Economics Education, Iowa State University, Ames, Iowa.

James W. Becket, Associate Specialist, Department of Agricultural Education, University of California, Davis, California.

Lawrence Braaten, Division of Adult and Vocational Research, Bureau of Research, U. S. Office of Education, Washington, D. C.

S. T. Branter, Department of Trade and Industrial Education, Pennsylvania State University, University Park, Pennsylvania.

V. E. Burgener, Chief Researcher and Statistician, State Board for Vocational Education and Rehabilitation, Springfield, Illinois.

Calfrey C. Calhoun, Chairman, Department of Business Education, College of Education, University of Georgia, Athens, Georgia.

Harley R. Cheshire, Department of Distributive Education, University of Georgia, Athens, Georgia.

Angel L. Alicea-Colón, Assistant Director, Trade and Industrial Education Program, San Juan, Puerto Rico.

Charlie M. Curtis, Department of Agricultural Education, Louisiana State University, Baton Rouge, Louisiana.

Jeanne Dost, Assistant Director, Research Coordinating Unit, Oregon State University, Corvallis, Oregon.

John Ephraim, Assistant Professor, Department of Industrial Education, East Tennessee State University, Johnson City, Tennessee

John C. Gilliam, Associate Professor, School of Business Administration, Texas Technical College, Lubbock, Texas.

Helen Gross, Rainier School for the Retarded, Buckley, Washington.

Nathan Gross, Assistant Professor, Department of Sociology, University of Washington, Auburn, Washington.

Leslie V. Hawkins, Professor, Department of Industrial Education, Texas A & M University, College Station, Texas.

Thomas A. Hoerner, Department of Agricultural Education, Pennsylvania State University, University Park, Pennsylvania.

William A. Householder, Chairman, Department of Agriculture, Eastern Kentucky State College, Richmond, Kentucky.

James Kiefert, Program Planning Specialist, Research Coordinating Unit, University of North Dakota, Grand Forks, North Dakota.

L. C. McDowell, Department of Trade and Industrial Education, College of Education, University of Kentucky, Lexington, Kentucky.

O. Donald Meaders, Department of Agricultural Education, Michigan State University, East Lansing, Michigan.

Carl A. Moeller, Assistant Professor, Department of Industrial Arts, School of Education, North Carolina State University at Raleigh, Raleigh, North Carolina.

Jane Preston, Vocational Programs Consultant, Minnesota Department of Education, St. Paul, Minnesota.

Lloyd A. Ponder, Director, Curriculum Laboratory, Natchitoches, Louisiana.

Al Ringo, Supervisor of Vocational Education, Department of Education, Salem, Oregon.

William B. Runge, Department of Distributive Education, College of Education, University of New Mexico, Albuquerque, New Mexico.

Robert E. Scott, Department of Industrial Education and Art, Kansas State College, Pittsburg, Kansas.

Benjamin Clifford Tinnell, Department of Industrial Education, Arizona State University, Phoenix, Arizona.

Douglas C. Towne, Research Associate, Department of Agricultural Education, Cornell University, Ithaca, New York.

Mercedes I. Vercher, Assistant Director, Trade and Industrial Education, Santurce, Puerto Rico.

Emanual Weinstein, Division of Vocational and Technical Education, Bureau of Adult and Vocational Education, U. S. Office of Education, Washington, D. C.

Ralph J. Woodin, Department of Agricultural Education, Ohio State University, Columbus, Ohio.

SEMINAR PLANNING COMMITTEE

H. G. Beard, (Chairman), Associate Professor, Departments of Agricultural Education and Sociology and Anthropology, North Carolina State University at Raleigh, Raleigh, North Carolina

C. Horace Hamilton, Professor of Sociology and Anthropology, North Carolina State University at Raleigh, Raleigh, North Carolina

H. M. Hamlin, Visiting Professor, School of Education, North Carolina State University at Raleigh, Raleigh, North Carolina

E. Walton Jones, (Vice Chairman), Associate Professor, Department of Economics, North Carolina State University at Raleigh, Raleigh, North Carolina

Charles E. Lewis, Administrative Assistant, Center for Research, Development and Training in Occupational Education, North Carolina State University at Raleigh, Raleigh, North Carolina

CONSULTANTS

E. Walton Jones, Associate Professor, Department of Economics, North Carolina State University at Raleigh, Raleigh, North Carolina

William P. Kuvlesky, Assistant Professor, Department of Agricultural Economics and Sociology, Texas A & M University, College Station, Texas

Everett S. Lee, Head, Department of Sociology, University of Massachusetts, Amherst, Massachusetts

Selz C. Mayo, Head, Department of Sociology and Anthropology, North Carolina State University at Raleigh, Raleigh, North Carolina

Howard Rosen, Assistant Director, Research Office, Manpower Administration, U. S. Department of Labor, Washington, D. C.

Sol Swerdloff, Chief, Division of Manpower and Occupational Outlook, Bureau of Labor Statistics, United States Department of Labor, Washington, D. C.

MANPOWER ADJUSTMENTS AND OCCUPATIONAL EDUCATION

E. Walton Jones
Associate Professor of Economics
North Carolina State University

INTRODUCTION

Economic returns to investments in education in this country are fantastic when contrasted with returns that businessmen expect from normal investment alternatives. Research conducted by Professor T. W. Schultz shows a 35 percent return from investments in elementary schooling, 10 percent from secondary schooling, and 11 percent from college training.[1]

Why are these returns so high? The answer is that in the process of creating the most highly developed country in the world, we have generated a high demand for trained workers to operate it. If the country is to sustain, and possibly increase, the rate of economic growth, the educational establishment must continue to improve the quality of its human resources.

In this paper, first, I will discuss briefly those aspects of the economic growth process which have particular relevance to education. Second, a framework will be proposed that might be useful to the educational planner or researcher in assessing the need for and relevance of manpower and mobility research in planning occupational education. Third, some of the major research findings in the area of manpower and mobility will be discussed and some of the gaps noted. Fourth, a few ideas will be presented regarding the basic objectives vocational education should strive for in preparing people to participate effectively in a growing economy. Finally, an annotated bibliography of selected research reports will be given.

Manpower Adjustment to Economic Growth

A shift of human resources is at the very heart of economic growth. This is apparent if we think about the logical course any new or developing nation would pursue in seeking growth. It is only natural emphasis would be placed first upon increasing the productivity of resources employed in the basic goods-producing industries. The first stages of development generally involve an increase in productivity within the agricultural sector of a nation's economy.

---

[1] Theodore W. Schultz, The Economic Value of Education, New York and London: Columbia University Press (1963), p. 62.

Increasing the productivity of agricultural and other primary industries permits a country to allocate more resources to production of other desirable goods and services. If we take a look at what has happened in this country, we see that the percentage of the total population in agriculture has declined from about 90 percent at the time of the Revolution to about 7 percent at present.

This movement of people or human resources from primary industries to manufacturing and service industries is one of the fundamental directions of growth. Since industries are usually associated with geography, another basic direction of resource shifts in response to growth is between regions of the country.[2]

The primary instrument of growth is new technology. This means that the proportion of capital to labor in practically all jobs increases as economic growth occurs. The result is that jobs become more complex and require higher levels of education and training. We might look at this as another basic direction of shifting resources. Manpower must continually shift to jobs requiring higher levels of skill and training.

It is apparent that mobility and migration of manpower is an essential aspect of the growth process. Increasing technology and the productivity of resources within any given industry merely establish the necessary conditions for growth. If human resources do not adjust or move to other industries and jobs requiring greater skills, higher levels of living will come about mainly through increased leisure. This is not consistent with the demand for material goods that has been manifest in this country and the work orientation of the American people.

Education and Manpower Adjustments

Occupational education is very closely associated with the operation of the economy and the functioning of the labor market. The entire educational system may be viewed in economic terminology as a processing industry. The raw material being processed is manpower or human resources.

---

[2] For more details on the process of growth and structural changes in the economy see Developing North Carolina's Human Resources (a series of six leaflets), Raleigh: N. C. Extension Service (1965).

Processing is required because industry cannot use them in their raw state--they must be refined and skills added in order to perform jobs generated by the economy.

If the occupational education establishment is viewed in this context, a framework might be established for determining the relevance of research on manpower and mobility. The function of occupational education, in essence, is to match the supply of labor to the demands of industry. All research conducted in this field can be related either to supply, demand, or to the movements representing approaches to an equilibrium between supply and demand.

The relevance of manpower research might be put into even sharper focus if some of the important decisions that have to be made with respect to providing occupational education could be identified. In delineating some of these decisions, we might establish four levels of decision-making that do not necessarily fall into any given hierarchy. These levels move from the individual school plant, to the local government, to the state government and to the federal government.

A few of the different types of decisions that it would appear have to be made are listed below. The levels of decision-making units involved in each of these decisions are listed in parentheses. This is not presumed to be an exhaustive or even an accurate listing, and the decision-making units stated are judgments by the author.

1. Whom to teach? Should the emphasis be on secondary school children, post-high school children, or adults whose skills have become obsolete? (P, L and S)[3]
2. What to teach? For example, should courses be designed to fit the local job market, the state or national market? (P, L, S)
3. How to teach? Should the school turn out finished products or should part of the job be delegated to industry? Should specific skills be stressed or broader principles emphasized? Many other questions are

---

[3] Initials indicate levels of decision unit involved: P - local school plant, L - local government, S - state government, F - federal government.

related to how to teach. (P, S)

4. What kinds of instructional equipment and facilities? (P, L, S)

5. What type of institutional structure to adopt? Should occupational education be confined to high schools? Should it be made a part of a community college system? Should independent vocational or technical institutes be established? (S)

6. What size individual school units? (S)

7. How many school units? (S)

8. Where to locate individual units? (L, S)

9. How to finance? (L, S, F)

10. How to meet emergency training needs? (L, S, F)

This list of decisions could be expanded. It is sufficient, however, to illustrate a method by which the education researcher might assess the relevance of research already conducted in the area of mobility and manpower to determine additional research needs. The mobility and manpower researcher might also sharpen his focus by attempting to identify specific decisions within the educational establishment or other decision units within the total society to which he is directing his research efforts.

In discussing some of the research findings in the area of manpower and mobility, I do not attempt to relate each item to decisions with the degree of specificity stated above. The discussion probably relates more to the broader view of the educational establishment as the intermediary between the demand for and supply of manpower in a growing economy that requires a mobile work force.

The Demand for Manpower

In planning vocational education, certainly one of the first things the educator needs to know is what industry requires in the form of trained manpower. A tremendous amount of effort has been devoted to developing statistical series and research designs to project the demand for workers. While these techniques are continuing to be refined, we now have available projections of changes in demand for manpower for several years in the future. The United States Department of Labor and the National Planning Association have these projections broken down by specific industry and occupation.

Some of the basic changes that have occurred in the demand for manpower and projections for the future are reviewed here. Also some of the major geographic shifts in demand are discussed. Finally, some discussion is devoted to changes in the quality of manpower in terms of education and training that industry is using.

Changes in the Industrial Structure

All industries can be, and are quite frequently referred to as, goods-producing and service-producing industries. There are four major goods-producing industries, of which manufacturing is by far the largest. Manufacturing includes such industries as steel, rubber, automobile and machinery, processed foods, tobacco, chemicals and paper--those industries where goods are literally made. Agriculture, which provides the food, feed and fiber for the nation, is also in the goods-producing section. Mining and construction are the two other major industries included in this group.

The service industry group includes transportation, trade, finance, insurance, real estate, domestic service and government. Workers in these industries are those who buy and sell, move goods from one place to another, provide banking, audit and insurance services; also included is a wide range of personal services. One of the most important service industries at present is government--federal, state and local.

If we look back and see what has happened in terms of employment in these industry groups, we find that right after World War I, about 65 percent of the workers in this country were engaged in the goods-producing industries, and only about 35 percent in the service-producing industries.[4] By 1962, the goods-producing sector was down to about 42 percent of all workers and the service-producing sector was up to about 58 percent.

Actually, the total number of workers engaged in the production of goods in 1962 was somewhat less than it was in 1919. The lack of increase in this sector has resulted largely from a substantial decline in agriculture and a persistent decline in mining. Both construction and manufacturing have increased employment over the long run; but these two divisions have not been areas of major employment growth in recent years.

---

[4] Most of the data on the demand and supply of labor in this paper, unless otherwise specified, were drawn from Seymour L. Wolfbein, Employment and Unemployment, Chicago: Science Research Associates, Inc. (1964) and Manpower Reports of the President, Washington, D. C.: U. S. Department of Labor (1963-1965).

In the service sector, the number of workers in transportation and public utilities has declined in the last several years because of the railroad industry's laying off thousands of workers. Finance, insurance and real estate workers, on the other hand, have more than doubled. The trade industry has accounted for a large proportion of the increase in service workers in recent years. Large demands for personal services on the part of the population has also helped to increase the demand for workers in the service sector.

It should be noted that government employment has been one of the largest sources of growth in jobs over the years since World War II. Government employment, particularly in the states and localities, has continued to grow right through turns in the business cycle.

There are many reasons why we have had this continuing growth in government employment. One important reason is the burgeoning postwar population. State and local government employment depends largely upon the number of people who have to be served. The demand for teachers for the record baby crop, for firemen and policemen, highway workers and hospital employees is affected by sheer numbers of the population. In this connection, we must not forget the very substantial movement of people to the suburbs. These areas, in many cases, had to start from scratch in providing government public services.

Since World War II, incomes have been rising steadily; and with increasing levels of living, there is a demand for better quality as well as more public services. The public sector will continue to be faced with an increasing demand for better services, better schools, better housing, better streets and roads.

A look at the future indicates there will be a continuous expansion of demand for government employment to 1975, (Table 1). Increases are also expected for most of the other service-producing industries, although there are some exceptions.

In contrast to the service-producing industries, the goods-producing industries seem to be in for a continuation of past trends which indicates

Table 1. Projections of civilian employment in the United States to 1975.

Industry	1962	1970 (projected)	1975 (projected)	Percent change 1962-75
		(thousands)		(percent)
Total civilian employment	67,842.6	78,717.2	85,987.6	26.7
Agriculture, forestry, fisheries	5,220.9	4,295.4	3,783.0	-27.6
Mining	577.0	539.4	505.0	-12.5
Contract construction	3,749.4	4,738.7	5,377.0	43.4
Transportation, communication, pub. utilities	4,081.0	4,140.6	4,128.0	1.2
Trade	12,952.0	15,116.7	16,454.0	27.0
Finance, insurance, real estate	2,965.9	3,919.4	4,469.0	50.7
Services	12,172.1	14,898.9	17,617.0	44.7
Government	8,726.0	11,539.0	13,266.0	52.0
Total manufacturing	17,398.3	19,529.0	20,388.6	17.2

Source: National Planning Association, 1965. State Projections to 1975: A Quantitative Analysis of Economic and Demographic Changes. Report No. 65 II, table 11-1, p. 181.

a substantial decline in employment in mining and agriculture.

Manufacturing has been subject to the most volatile ups and downs with the business cycle, but there has been no real upward thrust in manufacturing employment since the end of World War II.

The construction industry is one of the goods-producing industries which has experienced an increase in demand for workers. This trend is expected to continue in view of the demand for street and highway construction as well as for homes and apartments. The large number of boys and girls of marriageable age in the late 1960's should generate a substantial surge in family formation and an increase in demand for housing.

Changes in the Occupational Structure

Occupational deployment and employment within a country are important determinants or indicators of its social and economic development. It is a reflection of the demand for manpower in terms that give some indication of the quality that is required.

Although in this paper a lot of emphasis is placed on the purely economic aspects of mobility and manpower adjustments, it might be noted that man's occupation certainly means more than material goods. Dr. Alba Edwards stated about 20 years ago that "the most nearly dominant single influence in a man's life is probably his occupation. More than anything else perhaps, a man's occupation determines his course and his contribution in life. And when life's span is ended, quite likely there is no other single set of facts that will tell so well the kind of man he was and the part he played in life, as well as a detailed and chronological statement of the occupation or occupations he pursued. Indeed, there is no other single characteristic that tells so much about a man and his status--social, intellectual, and economic--as does his occupation. A man's occupation not only tells for each work day what he does during one-half of his waking hours, but it indicates with some degree of accuracy, his manner of life during the other half--the kind of associates he will have, the kind of clothes he will wear, the kind of house he will live in, and even to some extent, the kind of food he will eat. And actually it indicates, to some degree, the cultural level of his family."

We might say a word about the development of the socioeconomics occupational groupings we see in most of the statistical series presented today. Dr. Edwards was a pioneer in developing statistics on occupations which he grouped into six major classes: professional persons, proprietors, managers and officials, clerks and kindred workers, skilled workers and foremen, semiskilled workers, and unskilled workers.

Each of these six groups represents a distinct socioeconomic class. Professional persons, more than most other workers, are engaged in purely intellectual pursuits. This contrasts with other service pursuits directly related to the production, exchange or distribution of material goods. Dr. Edwards, in referring to this group, stated that perhaps more than the workers in any other socioeconomic group, professional workers are pursuing their occupations primarily because of true professional interest in their chosen fields of work, rather than because of monetary or other considerations.

Still drawing from Dr. Edwards' discussion, he stated that the proprietors, managers, and officials do most of the hiring and firing. They pay relatively high taxes; they largely control capital; they determine, to a great extent, what the lines and extent of production shall be; and with their assistants, they direct the work of most of the other workers.

In discussing the unskilled group, Dr. Edwards stated these workers are less well educated and more poorly paid than are the workers in any other group. Because of their lower economic status, they more frequently suffer from unemployment and become the subjects of relief. Inevitably their views on social and economic questions are influenced by their form of life and labor.

The Census Bureau has not gone much beyond Dr. Edwards' original occupational groupings. At present, included in the white-collar occupations are the professional and technical groups, managers, officials and proprietors, and clerical and sales. Since 1900, this white-collar group has moved into first place in the occupational standings. Two out of every five workers are now in this group. Today this group is about two and one-half times larger as a proportion of the economically-active civilian population than it was in 1900.

Farming occupations, which include farmers and farm managers, farm laborers and foremen, have moved in the opposite direction. This group has dropped from first place in 1900 to last place at the present time. Today the proportion of all workers engaged in farm occupations is only about one-half of what it was in 1950, and only about one-third of what it was in 1940. Looking back to 1900, it is only about one-sixth as large now as it was in that year.

Actually, the increase in white-collar workers has just about offset the decrease in workers from the farm group. This means that the over-all changes for the blue-collar category and the service occupations have remained fairly stable. In the blue-collar group, the record shows a small upturn since 1900, but a leveling-off during the more recent decades. Service occupations have tended slightly down since the 1900's, but there are signs of a major increase rather than a leveling-off.

A closer look at what has been happening in the white-collar occupations gives us some idea of the major changes, both economically and socially, that have been taking place in this country. It is significant that the professional occupations have been the fastest growing--showing almost a threefold increase in jobs over the past 60 years. For the first time, more than one out of every ten workers is a professional or technical person. In 1900, only about 1 in 25 was performing in these fields.

Persistent technological advances and accompanying industrialization and urbanization have resulted in this tremendous growth in professional and technical workers. Research and development have resulted in a demand for a twentyfold increase in the number of engineers since 1900. The number of teachers has quadrupled, and the advancing frontiers of science have lifted the job totals for physicists, mathematicians, chemists and biologists. Certainly, increases in income and levels of living, advances in life expectancy, and breakthroughs in medicine have all combined to create a new demand for health services with a corresponding impact on doctors, dentists, and nurses.

In recent years, there has been a marked increase in demand for the semiprofessional or paraprofessional workers. These workers are the technicians trained to assist professional personnel and to take over some of their more routine duties.

Some of the more rapid advances have taken place in clerical occupations. In recent years, the demand for workers to run our paper economy and records-keeping and communications systems has become staggering. In 1960, we had about 2.2 million secretaries, stenographers, and typists alone, which was more than 15 times the number in 1900. Also included in this group are bookkeepers, cashiers, office machine operators, bank tellers, telephone operators, and shipping and receiving clerks.

The terrific increase in retail and wholesale trade industries has placed additional demands on salesworkers. Likewise, the number of insurance agents and brokers, real estate agents, and manufacturing sales personnel has increased rapidly.

The occupational group classified as managers, officials, and proprietors is somewhat conflicting in terms of changes in employment. Proprietors have actually declined in the retail field; for example, in the face of competition from discount houses, supermarkets, and such. The managerial group has grown in response to the changing size, scope and organization of the business and industrial community.

It is difficult to generalize from these broad occupational groupings. For example, in the blue-collar sector, the three major occupational groups have moved in significantly different directions. Among craftsmen, the general trend has been upward since 1900, but the numbers have been relatively stable for the more recent decades. This group includes the skilled sector of the nation's manpower resources such as construction workers, mechanics, and repairmen who install, maintain, and repair the constantly increasing amount of complex equipment used in industry and the home. There has been an increasing demand for metal craftsmen who make models, dies and tools, and patterns, and production workers in such industries as printing and machinery.

It is significant that the semiskilled sector of our working population--the operatives--is the largest. This group has grown as a result of the development of the assembly line, which is a part of the industrialization of the United States during the 20th century. Many skilled hand trades have been broken down into a series of operations in factories. The operatives classification includes many types of jobs that did not exist prior to the 1900's.

The only blue-collar worker group in the American economy, aside from domestic or private household service workers, that has declined since 1900 is the laborer group. The decline in this group has been enormous. It has moved from one of the top occupational groups in 1900 to one of the smallest in our economy. At present, only one out of every twenty workers is classified as an unskilled laborer.

When we look beyond the over-all figure in the service occupation group, we see that domestic service employment has been cut almost in half as a proportion of the working population, while the other service fields have moved up two and one-half times. The number and percent in the private household group increased slightly in the '50's, mainly due to an increase in the number of babysitters. Service jobs in other areas have been increasing rapidly. These jobs include such things as waiters, waitresses, bartenders, counter and fountain workers, cooks, protective services, and health services.

In the farm sector, farmers and farm managers, as well as farm laborers and foremen, have shared in the dramatic decline which has taken place.

Looking to the future, we expect most of these trends to continue (Table 2). The largest increase is expected in professional and technical jobs. Many of these jobs will be in engineering and scientific professions as a result of continuing expenditures for research and development both in the civilian and military sectors of the economy. We expect a strengthening of the demand for technicians who work with the engineers and scientists. Teaching and health professions also will continue to grow at rapid rates.

In the clerical and service fields, expansion is expected to be well above the national averages. A large increase is expected for skilled craftsmen, especially in the building trades, and for mechanics, repairmen, and machinists. Lower-than-average growth is expected for the semiskilled trades in view of expected continuation in technological advances and automation. Further, we can expect a continuation of the decline in the proportion of nonskilled laborers. In the farm sector, we expect not only a decline in the proportion of persons employed, but also in actual numbers.

The Changing Location of Jobs

The center of job opportunities continues to move westward (Table 3). The major trends are still along the West Coast to the Southwest to Florida. Between 1947 and 1962, nonagricultural employment rose at double or more the national average in California, Texas, Florida, Colorado, New Mexico, Arizona, Utah, and Nevada.

In 1962, one out of every six nonfarm jobs was in California, Texas, and Florida. Although the Rocky Mountain states are still relatively small

Table 2. Distribution of civilian employment by industries and broad occupational groups projected to 1975 for the United States.

	All Industries		Agriculture		Mining		Construction		Trans., Comm., Utilities	
Occupation	1960	1975 (proj.)	1960	1975 (proj.)	1960	1975 (proj.)	1960	1975 (proj.)	1960	1975 (proj.)
					(Percent)					
Professional	11.8	15.1	1.3	3.1	7.5	11.6	4.6	5.9	5.2	7.6
Managers	13.3	10.3	53.5	44.0	6.1	6.6	9.9	12.0	7.7	8.2
Clerical	14.9	16.3	0.7	1.2	7.6	8.8	4.6	6.0	24.3	25.2
Sales	7.5	7.7	0.2	0.4	0.5	0.6	0.4	0.5	0.9	1.1
Craftsmen & Foremen	13.7	14.5	0.7	1.3	22.5	27.0	54.1	51.1	21.6	22.5
Operatives	18.5	17.1	2.4	2.7	54.8	44.3	8.8	9.8	28.3	28.6
Service Workers	11.9	13.1	0.3	0.5	1.0	1.1	0.5	0.7	2.8	1.8
Laborers	8.4	5.9	40.9	46.8	-	-	17.1	14.0	9.2	5.0
Total Civilian Employment	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(Table continued)

Table 2. (Continued)

Occupation	Trade 1960	Trade 1975 (proj.)	Fin., Ins. Real Estate 1960	Fin., Ins. Real Estate 1975 (proj.)	Services 1960	Services 1975 (proj.)	Government 1960	Government 1975 (proj.)	Manufacturing 1960	Manufacturing 1975 (proj.)
					(Percent)					
Professional	1.9	2.1	3.3	3.5	26.3	29.1	34.0	38.5	7.7	12.3
Managers	19.2	13.6	17.7	18.5	5.9	5.4	5.7	5.4	5.1	5.3
Clerical	13.9	17.5	47.0	47.0	12.9	14.0	24.0	22.0	12.2	12.6
Sales	27.4	25.0	22.4	23.4	0.9	1.0	0.3	0.2	3.6	4.4
Craftsmen & Foremen	7.5	8.6	1.9	0.9	7.9	7.0	8.8	8.4	19.9	22.1
Operatives	12.2	15.0	0.5	0.4	7.3	5.7	5.8	5.3	43.7	38.9
Service Workers	14.1	14.6	5.8	5.5	36.6	36.5	16.7	16.0	1.7	1.3
Laborers	3.8	3.6	1.4	0.8	2.2	1.3	4.7	4.2	6.1	3.1
Total Civilian Employment	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 3. Projection of Civilian Employment by Geographic Regions to 1976

Industry	United States			North			South			West		
	1960	Proj. 1976	Percent Change 1960-76	1960	Proj. 1976	Percent Change 1960-76	1960	Proj. 1976	Percent Change 1960-76	1960	Proj. 1976	Percent Change 1960-76
	(thousands)			(thousands)			(thousands)			(thousands)		
All Industry	66,392.0	87,480.0	31.8	38,436.0	49,350.0	28.4	16,164.0	21,110.0	30.6	11,792.0	17,020.0	44.3
Agriculture	5,784.0	3,720.0	-35.7	2,211.0	1,210.0	-45.3	2,407.0	1,540.0	-36.0	1,166.0	970.0	-16.8
Mining	598.0	500.0	-16.4	205.0	160.0	-22.0	269.0	250.0	- 7.1	124.0	90.0	-27.4
Construction	3,707.0	5,500.0	48.4	1,969.0	2,920.0	48.3	998.0	1,460.0	46.3	740.0	1,120.0	51.4
Trans., Comm. Utilities	4,245.0	4,190.0	- 1.3	2,474.0	2,130.0	-13.9	982.0	1,240.0	26.3	789.0	820.0	3.9
Trade	13,013.0	16,560.0	27.3	7,444.0	9,000.0	20.9	3,171.0	4,170.0	31.5	2,398.0	3,390.0	41.4
Fin., Ins., R.E.	2,922.0	4,710.0	61.2	1,784.0	3,020.0	69.3	621.0	810.0	30.4	517.0	880.0	70.2
Services	11,286.0	18,150.0	60.8	6,728.0	10,380.0	54.3	2,387.0	4,120.0	72.6	2,171.0	3,650.0	68.1
Government	7,801.0	13,580.0	74.1	4,088.0	7,020.0	71.7	2,024.0	3,560.0	75.9	1,689.0	3,000.0	77.6
Manufacturing	17,036.0	20,570.0	20.7	11,533.0	13,510.0	17.1	3,305.0	3,960.0	19.8	2,198.0	3,100.0	41.0

States included in the designated region include:

North - Minnesota, Iowa, Maryland, Delaware, District of Columbia, New Jersey, Vermont, Missouri, Illinois, Wisconsin, Indiana, Ohio, Michigan, West Virginia, Pennsylvania, New York, Rhode Island, Connecticut, New Hampshire, Massachusetts, Maine.

West - Washington, Oregon, Wyoming, Nebraska, Kansas, California, Nevada, Idaho, Montana, New Mexico, Arizona, Utah, North Dakota, South Dakota, Colorado.

South - Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma, Texas.

in population, they now account for close to 2 million wage and salary jobs in the nonagricultural sector.

The underlying reasons for this great geographic shift in jobs include the rise of certain service industries such as style centers in Dallas and San Francisco, the upsurge in importance of petroleum products and the growth of recreational and leisure-time activities in such states as Florida, California, and certain Rocky Mountain states. Also, there has been the development of centers related to national security such as Cape Kennedy, Florida, and Los Alamos, New Mexico.

An interesting development in recent years has been the rapid rate of growth of industry in the southern states. Nonagricultural employment has been broadening gradually in the South, and the entire southern block of states has scored increases in nonfarm jobs above the national average. There are some signs that the classic western pattern of migration may be slowing as the growth of economic opportunities is increased in the South.

The significant pattern of change in the growth of job opportunities is the below-average growth that has been experienced in recent years in the New England, Mid-Atlantic and East North-Central regions. In the East North-Central region, five important Great Lakes states--Ohio, Indiana, Illinois, Michigan and Wisconsin--are experiencing below-average rates of growth. This region, before and after World War II, experienced above-average rates of growth and jobs, took the lead in factory jobs from the Mid-Atlantic states, and came very close to first place in all nonagricultural employment. These states have a heavy concentration of metal-working industries such as steel, automobiles and machinery. Job growth has slowed considerably under the impact of automation, technology change, and changing patterns of demand. The region grew only 16 percent in the period 1947-62, compared with the national average of 26 percent.

The rate of growth in the New England region from 1947 to 1962 was only half that of the national average. During this period, Rhode Island was one of two states in the country that experienced an actual decline in nonagricultural jobs. The Mid-Atlantic region has been growing at below-average rates. However, it is still the largest single region in terms of the number of jobs, and maintains the lead in finance and manufacturing. The state of New York, in 1962 alone, had as many nonfarm jobs as the whole Pacific region.

Pennsylvania had the smallest advance in the nation in nonfarm jobs between 1947 and 1962. Actually, Pennsylvania and West Virginia together account for half of the areas that have been listed as areas of substantial and persistent unemployment in the country.

It is significant that states which have been having the biggest increase in employment have also had marked upturns in the service sector. This is particularly true of government employment.

Changes in Educational Requirements

Certainly, it is apparent occupational trends reviewed thus far indicate a decided shift toward jobs that require more and more education, training and skill. In 1960, one in three male workers was employed as either a professional or technical person or a skilled craftsman.

In almost every instance where jobs have been increasing, it has been in the group where the educational level is highest. The response to the increasing demand for education and skills is indicated by the average or median years of school completed in 1960 by people in various age groups. The median years of schooling completed by those 65 and over was only 8.4. The 25-29 age group had completed an average or median of 12.3 years of schooling.

The trend toward more education is expected to continue. The relation between changing industrial and occupational structure and educational and training prerequisites for employment has become a major dimension of labor force patterns and trends. There are no signs whatsoever to indicate a change in this evolution.

The Supply of Manpower

The other side of the picture that the educational establishment certainly needs to take a look at in preparing or processing human resources to meet the demands of a modern and growing economy is the supply of manpower. A considerable body of research describes the raw materials for the educational establishment. In this report, only some of the major characteristics of the labor force as described by research available is given.

The supply of labor or manpower may be viewed in many different ways. For example, one may look at new entrants into the work force or those reaching a certain age. One industry moving into an area may look at the number of unemployed as being the basic supply available. Another might depend more on bidding away resources from other industries.

If we consider industry in the aggregate, supply of labor is probably viewed in terms of the total number of people participating in gainful employment or actively seeking employment. Actually, the labor force defined in this manner has already passed through some phase of the educational plant at least once. In viewing the labor force in terms of our framework for education as an intermediary between supply and demand, we see that the output of the educational plant may be, in some instances, very far removed from the source of initial educational experience. Looking at the labor force in this context, we see some of the continuing needs of the work force. Also, we can visualize the stream of human resources which will continue to pass through the educational process.

Research on the supply of labor generally attempts to describe the work force and labor force in terms of participation rates by various demographic characteristics. Chief demographic characteristics include age, sex, race, family, and place of residence. In this section we will look at some of the over-all characteristics of the labor supply and the changes that have been taking place which have affected participation rates. In addition, we will look at some of the projections that have been made regarding growth in the total labor supply.

Long Run Changes in Labor Force Participation

Over-all labor force participation rates have been remarkably steady over the last 75 years. There really has been no statistically significant difference in the labor force participation in this century. The economically active proportion of the population remains a little over 50 percent. This over-all stability, however, should not be interpreted as indicating the structure of the labor forces has not changed. There are counterbalancing forces at work that contribute to this stability. Over the years, we have seen significant declines in labor force activity among the young and old on the one hand and an equally significant increase in activity among adult women on the other. Some of the major changes that have been taking place in the labor force are listed below.[5]

---

[5] These trends are elaborated on more fully in Wolfbein, op. cit., pp. 145-153.

1. Extent of labor force participation for male and female has become more nearly equal. The narrowing of differences in rates has been the result of concurrent declines in labor force rates for men and increases for women.

2. The difference between labor market participation rates for whites and nonwhites has narrowed. This has come about as a result of an increase in the participation rates for whites, and a significant decline for nonwhites.

3. The rate of labor market participation among men, both white and nonwhite, has declined significantly. Among white males, the decline since the turn of the century has been little less than 10 percent. The decline among nonwhite males has been close to 20 percent.

4. Women have been increasingly more active in the labor market. The labor market participation rate has actually doubled for women in this century. Most of this increase has been among white women.

5. Labor market participation among teenagers has declined substantially. The decline has been especially marked among nonwhites. Some of the reasons for this include: (a) increasing school attendance associated with minimum school attendance laws, (b) rising educational requirements for employment, and (c) the shift or migration of youth from farm to city. A group of teenagers whose labor participation rate has not declined is young white girls. This reflects the great increase in employment opportunities for white girls in clerical and sales fields.

6. White and nonwhite teenagers have reversed positions in terms of labor force participation. In 1960, white males 14 to 19 years old had about a 10 percent higher labor force participation rate than nonwhite. In previous years, the participation rates for nonwhite males 14 to 19 years old was about 15 percentage points above that of their white counterparts.

7. Participation in the labor force has declined among men in their early twenties. This is especially true of nonwhite males. The reason for this is primarily the trend toward more education after high school.

8. The rate of labor force participation among females in their early twenties has been increasing. This is particularly true of white females.

9. White and nonwhite workers, 20 to 24 years old, have reversed positions in terms of labor force participation. What was once a slight edge in labor market participation for nonwhite males 20 to 24 years old, has given way to a slight edge for white males.

10. Labor market participation has held steady and high among adult white men. It might be expected that white men 25 to 54 years old would have consistently participated very strongly in the labor market.

11. Labor market participation has decreased among adult nonwhite men. The rate for nonwhites has been going down significantly since 1940. Several decades ago, the labor force participation rate for adult nonwhite males was 90 percent or more.

12. Among adult women, white and nonwhite, labor market participation has significantly and persistently moved up. The increase in participation rates in this group has been the factor that has counterbalanced many of the declines. Among white women, the participation has doubled since 1900 for the age group 25 to 34. It has gone up three and one-half times for those 35 to 44, and quadrupled for women 45 to 54.

13. Men 55 to 64 years of age have demonstrated declining labor market participation. The decline among nonwhite males has been much more marked than among white males.

14. Women 55 to 64 years of age have increased their rate of labor market participation over the years. Among white women, the increase has been enormous.

15. By far the biggest decline in labor force participation has occurred among men 65 years old and over.

16. Labor market participation has gone up for women 65 years old and over. In 1960, one out of ten women in this age group was working. This is nearly double the rate of 1940.

17. Married women have had by far the most significant increase in labor market participation over the years. In 1900, about one out of every twenty married women was in the labor force. Now, the rate is about one in three.

18. Single and married women have reversed positions in the composition

of the female labor force. In 1890, the bulk of women workers were single--close to 70 percent. Now, single women account for less than 25 percent of the total number of women working.

19. The nonwhite male has declined in the proportion of the total labor force. In 1890, he accounted for about one out of every ten workers. At present, the proportion is only one-half that much.

20. The average age of the labor force has increased considerably over the years. In 1890, the average age of men in the labor force was about 32, now it is closer to 40. Also in 1890, the average age for women working was a little under 25. Now the median age of female workers is about 38.

Socioeconomic Factors Affecting Labor Force Participation Rates

A few of the factors that probably have been very important in the changing structure of the labor market are listed below:

1. Change in the concept of the economic role of women.

2. Changes in the size and composition of the family.

3. Changes in attitudes regarding the respectability of young women working.

4. Technological advances that have reduced the drudgery of work in the home.

5. Changing technology that has increased the number of service-producing industries.

6. Decline in farm employment which previously allowed workers to continue working to older age levels.

7. Increasing technology on the farm which has reduced the labor force activity of nonwhite workers.

8. Increasing emphasis on education which has kept children in school to older age levels.

9. Increase in part-time work, which has been especially desirable for female labor force participants.

10. Growth in retirement programs and in increasing standards of living. This has permitted families to support their children in school for long periods of time and also to retire at an earlier age.

Projected Growth in the Labor Force

The Department of Labor has made detailed projections of the labor force for the future. Highlights from some of these projections show a net increase of about 13.5 million between 1960 and 1970. This represents exits of about 15.5 million workers and a gross increase of 29 million.

It is important to note that about 26 million new young workers are projected to be coming into the job market during the 1960's. This is about a 25 percent increase over the number in the 1950's. This tremendous surge in new workers results from the high birth rates in the period following World War II.

In 1970, we expect to have about 13 million more persons in the 14 to 24 age group than in 1960. It is anticipated that a little over 23 percent of the total work force will be in this age group in 1970.

At the other end of the scale, the number of workers in the group 45 years old and over is expected to increase by about 5.5 million between 1960 and 1970. A national decline is expected in the age group 35 to 44, because of the low birth rate during the 1930's. About a million fewer men and women 35 to 44 years old are expected in 1970 as compared to 1960.

Because of the combination of past events and anticipated future developments, a profile of the labor force by 1970 looks somewhat like an hourglass with big bulges at the ends and a narrow waist in the middle.

Recent projections indicate that the total labor force will increase to about 94 million by 1975 (Table 4). This labor force will be dispersed largely in relation to where the jobs are with largest growth to the west and Florida.

The Mobility Potential of the Work Force

It is generally conceded that mobility is essential to a rapidly growing economy. We might look at how well the labor force in the United States has adjusted as one indication of its mobility or to judge its mobility potential.

Table 4. Population, total labor force and labor force participation rates, by age and sex, 1960, 1964, and projected 1975.

Age and Sex	Total Population (July 1) 1960	Total Population (July 1) 1964	Total Population (July 1) (proj.) 1975	Total Labor Force (annual averages) 1960	Total Labor Force (annual averages) 1964	Total Labor Force (annual averages) (proj.) 1975	Labor Force Participation Rates 1960	Labor Force Participation Rates 1964	Labor Force Participation Rates (proj.) 1975
		(thousands)			(thousands)				
Both Sexes									
14 years and over	127,327	136,144	162,046	73,081	76,971	93,646	57.4	56.5	57.8
Male									
14 years and over	62,216	66,217	78,408	49,563	51,118	60,281	79.7	77.2	76.9
14 to 19 years	8,194	10,019	12,583	3,792	4,307	5,589	46.3	43.0	44.4
20 to 24 years	5,553	6,587	9,609	4,939	5,704	8,331	88.9	86.6	86.7
25 to 34 years	11,347	11,069	15,557	10,940	10,636	14,966	96.4	96.1	96.2
35 to 44 years	11,878	12,035	11,068	11,454	11,559	10,703	96.4	96.0	96.7
45 to 54 years	10,148	10,640	11,379	9,568	10,043	10,810	94.3	94.4	95.0
55 to 64 years	7,564	8,020	9,287	6,445	6,745	7,795	85.2	84.1	83.9
65 years and over	7,530	7,847	8,923	2,425	2,123	2,087	32.2	27.1	23.4
Female									
14 years and over	65,111	69,927	83,638	23,518	25,854	33,365	36.1	37.0	39.9
14 to 19 years	7,989	9,732	12,219	2,408	2,732	3,739	30.1	28.1	30.6
20 to 24 years	5,547	6,543	9,446	2,558	3,220	4,865	46.1	49.2	51.5
25 to 34 years	11,605	11,275	15,582	4,159	4,187	6,124	35.8	37.1	39.3
35 to 44 years	12,348	12,552	11,391	5,325	5,618	5,582	43.1	44.8	49.0
45 to 54 years	10,438	11,143	12,195	4,150	5,682	7,024	49.3	51.0	57.6
55 to 64 years	8,070	8,670	10,558	2,964	3,447	4,826	36.7	39.8	45.7
65 years and over	9,115	10,012	12,248	954	966	1,205	10.5	9.6	9.8

SOURCE: Manpower Report of the President, 1965. Table E-2, p. 248.

Status of Labor Force Adjustment

The degree to which the work force is adjusting to a growing economy can be judged by looking at two basic economic variables--unemployment and underemployment. Certainly, unemployment existing at the same time with job vacancies indicates maladjustment. Underemployment is evident when workers in specific jobs or in certain areas are not getting wages or incomes equal to persons with comparable skills and resources in other jobs or locations. These criteria represent less than optimum use of resources, since increasing employment or transferring underemployed workers to higher paying jobs would result in a higher national income.

In assessing the status of adjustment of the labor force, it is not enough to look at unemployment in the aggregate. This is particularly true if one is concerned with the role of education in bringing about better adjustment.

Unemployment has been classified by various people and groups in terms which have little meaning. For example, unemployment was identified by more than fifty labels in a recent study conducted for the Joint Economic Committee in Congress. The terms used to describe unemployment included: disguised, short-term, volitional, vicarious, secondary, etc.

The four categories included in professional literature which relate to specific kinds of problems include: (1) frictional, (2) seasonal, (3) cyclical, and (4) structural. It is almost impossible to classify the unemployed accurately within these groupings. There is good reason to try, however, since they are related to general types of policies that might be applied as a remedy.

Frictional Unemployment. Frictional unemployment has particular relevance to the mobility potential of the work force. It refers to joblessness generated partly as a result of imperfection in the labor market or changes that necessarily occur in the normal working of the economic system. Even with adequate jobs, it takes some time for workers to adapt themselves.

This kind of unemployment is considered transitory. People voluntarily quit their jobs, for example, to move to another job they prefer. During the period of transition, they are often counted as unemployed. Businesses close down and workers have to be relocated.

This type of unemployment, to a large extent, is unavoidable. It has real implications for education and training, however. Retraining is often essential to move people from one type of industry to another. Certainly, this type of unemployment has implications for better job information and more effective use of employment services.

There is considerable evidence that frictional unemployment does exist. For example, during World War II when there was a tremendous demand for labor, the unemployment rate approached 2 percent. Data are also available that show a high percent of unemployment is getting very short-run.[6] For example, many show up as having been unemployed less than five weeks in a given month and do not show up as unemployed the following month.

As a percent of the labor force, the number unemployed for less than five weeks has not varied very much since 1948. This figure has ranged between 1.5 and 1.8 for the years 1948-1962.

Frictional unemployment varies directly with the business cycle as a percentage of total unemployment. In the recession year of 1949, the proportion of total unemployed was about one-third. In the boom year of 1953, it was about one-half.

Seasonal Unemployment. Another major category is seasonal unemployment, although it is often difficult to differentiate this type from frictional unemployment. Certainly, it is important to distinguish it, because its cure is considerably different than that for other types.

As might be expected, the amount of seasonal unemployment varies considerably between industries. *In 1957, the Bureau of Labor Statistics* estimated the percent of total unemployment in several industries that could be classified as seasonal. The figures ranged from 8 percent in transportation to 41 percent in agriculture. The average for all industries was 26 percent.

Cyclical Unemployment. Cyclical unemployment, a result of changes in the business cycle, is the kind of unemployment that has always generated the largest stream of government countermeasure. Since 1945, four major cyclical swings in the economy are recognized. We are now on the upswing of the fifth.

The cure for this type of unemployment generally is in the realm of monetary and fiscal policy. For this reason, it probably has less significance for education and mobility potential than any other type of unemployment.

---

[6] Data from U. S. Bureau of Labor Statistics as published in Wolfbein, op. cit., pp. 289-292.

Structural Unemployment. The joblessness under each of the other classifications is considered to be of temporary duration or, at least, has a fairly recognizable terminal point.

Structural unemployment is the result of fundamental changes in the economy. It is brought about by major changes in technology, changes in locations of industries and in the total industrial and occupational mix.

Examples of structural changes that have resulted in unemployment include: increased productivity of agricultural resources, the shift from steam to diesel engines, decline in use of bituminous and anthracite coal, and the shift in employment from goods-producing to service-producing industries.

The problem of structural unemployment demands adjustments in three basic dimensions - geographically, industrially, and occupationally. Policies generally involve both an attempt to bring jobs to workers and the training of people to perform in new areas, new industries and new jobs. Unemployment under this classification is generally of long duration.

Characteristics of the Unemployed. The amount of unemployment varies considerably with certain characteristics such as age, race, marital condition and dependents.

Generally speaking, unemployment is highest among young people, nonwhites and unskilled workers. It also is encountered in goods-producing industries. Unemployment is becoming more associated with people by geographic location. Areas with the greatest unemployment problems are those where resources have been depleted, technological changes have been taking place rapidly, and where there have been drastic industrial shifts.

There are many other characteristics of the unemployed that could be discussed. This is adequate, however, to provide some feeling for the diversity of the problems. It is important that we have a fairly good understanding of the anatomy of unemployment, since it is one of the primary symptoms of an economy out of adjustment. It is the basic disease that needs treatment through a range of public policies and education.

The Underemployed. Underemployment is the other basic symptom of a lack of adjustment of the labor force and the job market. As stated earlier, the basic criteria for measuring underemployment are differences in incomes of people with comparable skills and resources in different occupations. If a difference exists, the value of the total GNP, or national income, could be increased by shifting resources from the low-paying to higher-paying industries.

Agriculture is the prime example of an industry with underemployed resources. The median income of rural farm families in the United States was about $3,000 in 1960. This is only about one-half the median income of urban families.

Evidence of underemployment is also found in income differences between regions of the country. Per capita income in the Southeast has been persistently lower than the national average. In 1960, per capita income in the Far West was more than $1,000 higher than in the Southeast.

Certainly, underemployment has many implications for education to increase mobility.

The Decision to Migrate

We are concerned with the mobility potential and migration of people from three standpoints: (1) how to predict it, (2) how to increase it, and (3) how to make adjustments in response to it. Certainly, we recognize that we cannot sustain a rapidly growing economy without some flexibility in the work force. Neither can we plan public or private institutions if we cannot predict how people respond to migration stimuli.

Professor Everett S. Lee has developed a framework or model for organizing research or information relative to migration decisions which appears to have considerable merit.[7] The model views all migration as consisting of three basic structural elements--a point of origin, a point of destination, and a space in between. Factors influencing migration decisions are characterized as pluses (+) or minuses (-) at both the origin and destination. The pluses favor migration, and the minuses are restraining forces.

---

[7] Everett S. Lee, "A Theory of Migration," (This paper was presented at the national meeting of the Mississippi Valley Historical Association, Kansas City, April 23, 1965) Population Studies Center Series in Studies of Human Resources, No. 1, Philadelphia: Population Studies Center, University of Pennsylvania.

In addition to the factors associated with the area of origin and the area of destination, he lists intervening obstacles and personal factors as important considerations in migration decisions.

Certainly, the balance of pluses and minuses in this model would be different for each individual. However, classes of people can be identified which react in similar fashion to the same general set of factors.

Professor Lee explains that one has to be careful in classifying factors as to origin and destination, since it is largely the individual's perception of the factor that influences the decision. A plus factor at the area of origin may be a much stronger influence than the same factor at the area of destination, since it is more recognizable.

Some Generalizations on the Selectivity of Migration

Types of people who apparently are the most responsive to plus factors or to migration stimuli have been identified by considerable empirical research. Some of the more important generalizations regarding the selectivity of migration are listed below:[8]

1. Age is consistently different between migrants and the basic population.

2. Persons from late teens to early thirties are generally the most mobile.

3. Females generally migrate at a slightly earlier age than males.

4. Men are usually more mobile than women.

5. Persons with professional occupations are among the most mobile segment of the population.

6. Laborers and operators are less mobile than the average worker.

7. Unemployed people are more migratory than employed workers.

---

[8] Most of these were gleaned from existing research by Donald J. Bogue, "Internal Migration" in The Farmer and Migration in the United States, (results of research workshop) Raleigh: Agricultural Policy Institute (1961), pp. 34-35. Also, many of these findings are supported by (a survey of labor market research recently conducted by William H. Miernyk and Robert D. Britt,) Empirical Labor Market Studies--A Summary and Synthesis, Boulder, Colo.: University of Colorado Institute of Behavioral Science (1965).

8. Negroes are less migratory than white persons.

9. Skilled workers are more mobile than unskilled workers.

10. Families with higher incomes are more mobile than those with lower incomes.

This is not an exhaustive list. Numerous labor market studies have been conducted that have classified workers into finer groupings. These are some of the major ones, however, that are generally accepted and supported by considerable research.

Generalizations About Migration Streams

Migration generally follows well-defined routes. This results from several reasons, including the fact that job opportunities are often localized, transportation routes are established, and a flow of knowledge from the area of destination usually is established back to the area of origin.

A considerable amount of research on migration is with reference to migration streams. Some of the important generalizations that can be supported by research in this area have also been summarized by Bogue. The list below draws heavily from his study.

1. The amount of interchange between any two areas is directly proportional to the population of the two areas and inversely proportional to the distance between them.[9]

2. The rate of net migration between areas is directly proportional to the difference in the level of living and inversely proportional to the distance between them.[10]

3. The number of persons moving a given distance is directly proportional to the number of opportunities at that distance and inversely

---

[9] G. K. Zipf, Human Behavior and the Principle of Least Effort. Cambridge: Addison-Wesley Press, Inc., (1949).

[10] A. R. Mangus and R. L. McNamara, Levels of Living and Population Movements in Rural Areas in Ohio, 1930-40 (Bulletin 639) Wooster, Ohio: Ohio Agricultural Experiment Station (1943) and J. Folger, "Some Aspects of Migration in the Tennessee Valley," in American Sociological Review, 18:253-60 (1953).

proportional to the number of intervening opportunities.[11]

4. Areas with low levels of living have a net out-migration, while areas with high levels of living have net in-migration.[12]

5. A high proportion of migration is between communities of the same type.[13]

6. Regional patterns of migration remain constant for several decades.[14]

7. The ratio of stream to counterstream of migration is low if conditions at point of migration and destination are similar.[15]

8. The ratio of stream to counterstream is high if the intervening obstacles between the two areas are great.[16]

9. The ratio of stream to counterstream is high in prosperous times and low in times of depression.[17]

Generalizations Regarding Volume of Migration

Professor Lee sets forth some interesting generalizations regarding the volume of migration. He poses the following as hypotheses rather than generalizations supported by empirical research.[18]

1. The volume of migration within a given territory varies with the

---

[11] S. A. Stouffer, The Theory of Intervening Opportunities, (paper presented at 52nd annual meeting of the American Sociological Society) (1957).

[12] C. Goodrich, et al., Migration and Economic Opportunity, Philadelphia: University of Pennsylvania Press (1936).

[13] D. J. Bogue, H. S. Shyrock, Jr. and S. A. Hoermann, "Subregional Migration in the United States, 1935-40," Volume I: Streams of Migration, (Scripps Foundation studies in population distribution, No. 5) Oxford, Ohio: Miami University (1957).

[14] H. S. Shryock, Jr. and H. T. Eldridge, "Migration in Peace and War," in American Sociological Review, 12:27-39 (1947).

[15] Ibid.

[16] Ibid.

[17] Ibid.

[18] Lee, op. cit.

degree of diversity of areas included in that territory.

2. The volume of migration varies with the diversity of people.

3. The volume of migration is related to the difficulty of surmounting intervening obstacles.

4. The volume of migration varies with fluctuations in the economy.

5. Unless severe checks are imposed, both volume and rate of migration tend to increase with time.

6. The volume and rate of migration vary with the state of progress in a country of the area.

The Incentives to Migrate

Certainly, the decision to migrate generally contains some arbitrary elements or unidentifiable factors. The geographic pattern of migration in this country has been and continues to be, however, one of movement to areas of better economic opportunity.

The movement from rural to urban areas has probably been the most dramatic example of migration since the end of the western frontier in this country. Dominant forces that have been "pushing" at the point of origin include low incomes, uncertainty concerning agricultural productivity and incomes, changes in technology and working conditions.

Forces exerting a "pull" on rural people to migrate, include high nonagricultural incomes, good working conditions in towns, and attractions of city life.[19]

These "push" and "pull" forces are related in the main to the supply of and demand for labor. Change in one set of forces relative to another creates an incentive for occupational and geographic mobility.

Several studies have been conducted that measure the significance of relative differences in farm-nonfarm incomes. Dr. C. E.Bishop shows that during periods of relatively full employment migration is increased by increasing the wages of nonfarm workers relative to the earnings of farm workers.[20] On the other hand, during periods of substantial unemployment, few people are willing to migrate at prevailing wages. The implication is that job rationing is one of the major impediments to migration.

---

[19] H. Krier, Rural Manpower and Industrial Development, OECD (1961), pp. 16-27.

A study of the earnings of persons who transferred from farm to nonfarm occupations in the United States shows that those who obtained nonfarm employment had higher incomes during the years after migrating. This study also concluded that the increase in earnings after transfer was greater for those in the younger age groups and that differentials decreased consistently with increased age.

There is ample evidence that the difference in earnings of labor in agricultural and nonagricultural employment at the present provides an incentive for labor to transfer from agriculture to nonagricultural employment. The motivation is strongest among younger groups where the difference in earnings is greatest and costs are least.

The Impediments to Mobility

The minus factors associated with mobility are incorporated in many of the generalizations already enumerated. Many specific impediments to a rationalization of the labor market, however, can be identified. Some of the more important ones are associated with: (1) population characteristics, (2) costs of mobility, (3) employment practices, (4) cultural philosophies, (5) deficiencies in community infrastructure, and (6) lack of transferable skills.[21]

Population Characteristics

The supply and demand for labor are influenced significantly by such characteristics as age, education, and training of the population. These factors affect the cost of mobility and the earning potential of the prospective migrant. For obvious reasons, old age is a barrier to mobility. Certainly, all available research indicates that a lack of education is also one of the major obstacles to mobility.

---

[20] A study which was extremely valuable in identifying research related to mobility of rural manpower was one by C. E. Bishop, Geographic and Occupational Mobility of Rural Manpower, Paris: OECD (1964), p. 10.

[21] Bishop, op. cit., p. 51.

The Costs of Mobility

The cost of occupational and geographic mobility is probably one of the major barriers to the transfer of labor from one geographic area or occupation to another. These mobility costs can be broken down into several components such as: (1) the opportunity costs of giving up present income or of income foregone during the transfer, (2) the direct costs of transfer, (3) the adjustment cost after transfer, (4) the cost of uncertainty with respect to future earnings, and (5) the nonpecuniary costs.

Opportunity Costs. Some of the most significant research done regarding the opportunity cost of mobility is with respect to agricultural labor. One study which treats farm income foregone as a cost of migration concludes that in the southeastern part of the United States an increase of $20 in per capita farm income decreases migration about one person per one hundred of the farm population.[22] This suggests that migration can be greatly reduced by public policies which increase incomes in current occupations. With respect to agriculture, it suggests that migration will be reduced by improvements in agricultural structure and other changes which increase per capita agricultural income.

Direct Cost of Transfer. Direct cost of moving depends upon the size of families, the amount of property, the distance involved, and the method of transportation. These types of costs vary from one area of the country to another. A recent study by the Area Redevelopment Administration indicates that the average cost of moving, for persons other than those transferred by their employer, was $180.[23] About 45 percent of the moves cost less than $50. One-third of the moves included in these cost computations involved distances of less than 100 miles. About one-fifth of the moves were for 600 miles or more. Costs also were related to the age of the family head, since younger heads have smaller families and usually have less household equipment to move. Three-fourths of those who were less than 25 years old moved for under $50. About 37 percent of the families whose head was 55 years old or over spent $200 or more in moving.

---

[22] W. D. Diehl, Farm-nonfarm Migration in the Southeast: A Cost-Returns Analysis. (Unpublished Ph.D. dissertation.) Raleigh, North Carolina: Department of Agricultural Economics, North Carolina State University (1964).

[23] Lansing and Barth, op. cit., p. 5.

These data suggest that the burden of the direct cost of moving is fairly light. The direct cost of moving, however, constitutes only a small part of the total cost of occupational and geographical mobility. The cost of foregone income largely exceeds the actual cost of moving. Travel cost probably constitutes less than one-half the cost of transfer.[24]

Costs of Uncertainty. Studies conducted with respect to agricultural migration or mobility indicate that instability of the nonagricultural sector may be a major deterrent to occupational mobility. Many farmers are inclined to discount nonagricultural earnings heavily because of uncertainty concerning the future income stream. This is especially true of workers whose earnings have been affected adversely by cyclical fluctuations in business activity. This barrier has been reduced considerably by unemployment insurance and other similar social benefits in the nonfarm economy. However, we still have a minimum period of employment coverage.

Nonpecuniary Costs. Probably some of the greatest barriers to mobility are the nonpecuniary factors. These minus factors in our mobility model include such things as religious beliefs, strong family ties, and fear and uncertainty toward different environments. This is particularly true in traditional regions such as the mountains and in rural areas. Fear and ignorance are often more effective impediments than many of the more realistic facets of the cultural complex. We find evidence of this, for example, in the tendency of people from a given locality to migrate to the same area as the first generation of migrants. A study conducted in Greece showed that 42 percent of migrants from rural villages hoped to live with relatives.[25] Many others planned to follow relatives. This period of moving into an unfamiliar environment undoubtedly causes farm people to discount possible earnings from nonfarm employment and, therefore, increases the uncertainty barrier.

Social stratifications of occupations often serve as nonpecuniary costs or barriers to mobility. Workers do not like to move and accept jobs in a lower social or economic category, even though money income may be higher. This is especially true of farmers migrating to urban areas. It has been found that many who return to rural areas after they have migrated likely do so because of the difficulty of making the social transition to an urban culture. One study indicated that nearly one-half of those rural people migrating to an urban area were dissatisfied to the extent that they were hoping or actually planning to return to farming.[26] Further analysis showed that dissatisfaction was related to the breadth of the cultural gap incurred in migration. Those who moved into a culture transplanted from the areas from which they migrated were most satisfied. A lot of the dissatisfaction existed among those who encountered a sharp cultural break as a result of migration.

---

[24] Bishop, op. cit., pp. 54-55.

[25] Motivations and Circumstances of Rural Migration, A: 4 Population, Athens: National Statistical Service of Greece (1962), p. 42.

Other Impediments

Some research has been conducted, but no specific generalizations made, with respect to the barriers to mobility of such things as conditions of employment, retirement provisions, severance pay, and restrictions upon entry into certain occupations and industries. Government programs which require residence periods in a given county or state in order to qualify for relief or unemployment benefits also are a major impediment to mobility.[27] Taken individually, any one of these factors could restrict mobility significantly. Taken collectively, they can be sufficient to make a difference between a high or only a moderate rate of economic growth in the country.

Economic Development and Structural Change

In the agricultural sector, increased mechanization and size of investment in farming has been one of the major impediments to mobility. Another facet of agricultural development which has had an important effect upon manpower mobility has been the adoption of biological and chemical innovations. These developments have both increased the necessity for migration and impeded it at the same time by squeezing small farmers to the point where they don't have sufficient incomes to leave.[28]

---

[26] E. D. Smith, "Nonfarm Employment Information for Rural People," Journal of Farm Economics, Vol. 38 (1956), p. 820.

[27] G. Donohue and R. T. Hildreth, American Workers on the Move--Leaflet No. 3 in Developing Human Resources for Economic Growth, Raleigh, North Carolina: Agricultural Extension Service, North Carolina State University (1965), p. 7.

Public Policy

Since agriculture has been the largest source of migration over the years, more research has been done in this sector of the economy than in others. Present income policies in agriculture have probably been the largest impediment to migration. These policies seek to increase per capita farm income and, as noted earlier, an increase of $20 in per capita farm income is associated with a decrease in all farm migration of 1 percent of the farm population. In periods of full employment, the impediment is likely to be even greater.

Infrastructure of Originating Communities

Again with respect to rural areas, it has been found that "giving" communities, in terms of migration, often impede migration because of a lack of adequate education and training facilities to prepare rural youth for nonagricultural jobs. This deficiency in education and training results in reduced nonagricultural earning capacity of potential migrants and thereby lowers the potential gains from occupational transfers. This relates to studies cited previously on the impact of income potential on migration.

Another deficiency in the less developed areas or the giving communities in terms of migration is a poor system of communication between people and the nonagricultural employment market. Experience with the Armed Forces shows that a high proportion of young men who enter military service from rural areas choose to live in urban areas and accept nonagricultural employment after completion of their military service. Since military service is accompanied by very little emphasis on vocational education in preparation for a civilian career, it must be assumed that most of the migration which takes place following military service is a result of better information concerning employment and living conditions in the nonfarm sectors.[29]

---

[28] Bishop, op. cit., p. 59.

[29] Ibid., p. 65.

Deficiencies in the Areas of Destination

Housing has been shown to be a very serious deficiency in the infrastructure of communities receiving migrants. In an international study, it was found that the lack of housing for persons who migrate, which necessitates that their families not accompany them for several years, has been a serious impediment to migration.

Failure of receiving communities to adapt their institutions to assimilate migrants also has been found to be an impediment to migration. Problems of cultural assimilation constitute important nonpecuniary costs of geographic mobility and are also serious impediments to occupational mobility.

Occupational Education as a Mobility Vehicle

Mobility of manpower is not an end to be achieved in itself. Primary concern is with increasing mobility and predicting migration with respect to the goal of achieving full employment and maximum economic growth. Manpower policies are concerned with improving the mobility potential of labor through training and other programs which is essential to occupational and geographical flexibility.

It has been pointed out several times in this paper how important education and training are to mobility of manpower. However, in agriculture where long-term migration decisions must be made most frequently and by more people, the quality of education and training to prepare people for the nonfarm economy is probably the lowest. A recent report prepared for the Organization for European Cooperation and Development (OECD) supports conclusions regarding the importance of education and training as a mobility vehicle, especially for rural workers.

> "...the promotion chances and work qualifications of former rural workers are, in general, slight. When they enter the nonagricultural labor force, they find themselves mostly in the group of unskilled workers--a marginal group. The great majority, especially older workers, stay in that marginal group without any chance of moving into another more advanced group, and if they want to change, or lose their job, there is little hope of their finding employment elsewhere."[30]

---

[30] G. Beijer, National Rural Manpower--Adjustment to Industry, Paris: OECD (1965), p. 25.

Training the New Entrant

By far the largest segment of the labor force with which the educational plant must continue to be concerned is the new entrant. In view of changes in the structure of the economy and our society, special attention should be given to this group in terms of the types and kinds of training that will be required. Serious attention should be given to: (1) building in flexibility and adjustment capacity, (2) providing for transferability of skills, and (3) providing a greater variety of programs.

Building in Flexibility and Adjustment Capacity. Some labor market analyses have noted that new entrants into the work force on the average may expect to change jobs seven times within their lifetime. A recent publication by the Department of Labor enumerated some 250,000 jobs and was criticized for leaving out others. The implications of this are quite clear. It means we must build flexibility into our work force that will permit a rapid movement between jobs and adjustment to new types of skills.

Certainly, we have not just developed an economy that is subject to rapid change and one that requires that workers adapt to new work situations. Rapid adjustments and changes are at the very heart of a competitive free enterprise system. In enumerating the rapid changes taking place in the American economy, there is a danger we might overlook the very essence of the free enterprise system. Somehow we are going to have to get the big picture across to students in vocational education of what this economy is all about. We cannot continue to teach skills in isolation as if these skills would provide them with job security for the rest of their lives.

Enterpreneurs and businessmen long ago became accustomed to rapid change and adjustment to new work situations. We have to instill this same philosophy into the hired worker of the future. The worker has to predict shifts in the economy and the direction of changes in the work force if he is to stay ahead of the forces of growth and competition.

Skill Grouping Necessary. Some consideration has been given to the transferability of skills. A lot more research is needed in this area. In addition to building vertical occupational ladders, we somehow have to build bridges between these ladders so it is not necessary for an individual to go all the way to the ground level to begin another profession or occupation.

It is apparent that a lot of skills are transferable in that many people move from or go into occupations other than the ones for which they were trained. For example, agricultural people quite frequently cite the percentage of workers who were trained in agriculture who are engaged in some other kind of work. This observation would be meaningful only if we could determine if this were the most efficient way to utilize our scarce educational resources. The workers might have been much further ahead if they had been trained directly for the job which they are holding, rather than having to transfer from a training program that is quite different. It could be a significant observation if we could identify the specific elements of agricultural training that contributed to competence in another area of work. More emphasis might be given these transferable elements in order to make the worker even more flexible.

It seems reasonable that we could develop some type of basic mechanics courses that would have application across many occupations. This is being done, in some instances, in the field of engineering. A year of occupational mechanics prior to getting into more specialized occupational training may be one way of building in more transferability of skills.

Providing More Variety in Programs. A report by a panel of consultants on vocational education established by the President indicates that about 26 million youngsters will have to be trained for the world of work during this decade.[31] This report indicates that of every ten youngsters now in grade school three will not finish high school and seven will earn a high school diploma. Of those who finish high school, three will go to work and four will continue their education. About eight of ten students who are now in grade school will not complete college. The question is how they will fare in the changing world of work.

It is with these eight that we are primarily concerned in vocational education. One of the basic conclusions drawn by the President's panel is that vocational education is not available in enough high schools and that the variety of opportunities varies considerably with the size of the community. A survey indicated that only 5 percent of the public high schools in 6 states offered courses in distributive education--about 9 percent of the schools offered trade and industrial courses. The vast majority of vocational training was in homemaking courses and agriculture. Nearly one-half of all the schools in these 6 states offered courses in both homemaking and vocational agriculture.[32]

---

[31] Education for a Changing World of Work, Document No. 92: Summary report of the panel of consultants on vocational education requested by the President of the United States, Washington: U. S. Government Printing Office (1961), p. 2.

It is apparent that not only is there a scarcity of vocational education in the high schools but that the mix may not be very highly related to the changes in the job market. The survey by the President's panel indicated that only a little over 50 percent of vocational education graduates worked in jobs related to their training in 1958. This figure was a little above 60 percent in all years between 1955 and 1959, with the exception of 1958. These data were for 13 northeastern states. If the same survey were taken in the South, the percentage would be a lot less because of the rapid transition of employment out of agriculture and the continued predominance of vocational agriculture in the schools.

The need for additional vocational education is also apparent from the large number of workers in specific areas who never were enrolled in vocational education courses. About 100 persons were employed in agriculture in 1961 for every 10 that were enrolled in vocational agricultural education in 1955. In distributive education, the ratio of enrollment to employment in 1955 was 1 to 200. The ratio for trades and industries was 2 to 444.

All research reports show that structural adjustments that must take place in agriculture in the future will result in a further transfer of farm workers to other occupations. This fact must be recognized in our educational programs. Better education and training of farmers will speed up this process. It is not realistic to think that all rural youth will have an opportunity to operate adequate commercial farms or that they will find attractive employment in farm-related occupations. The implications are clear. We must provide more opportunities for vocational training in areas outside of agriculture in our public school system.

Providing for Skill Improvement and Replacement

The formal educational system has had little regard or little interest in the past in the worker after he was launched into the economy.

---

[32] Ibid., p. 11.

In an economy where growth is moderate or slow, vertical migration or mobility took place largely through a movement from lower-scale to higher-scale jobs within the same industry. This mobility was made possible through training programs provided by the industry itself and through the initiative of the individual worker who sought to move up within his chosen vocation.

Vertical mobility, however, that requires a worker to move to an entirely new ladder, cannot be ignored by the formal educational system. Industry cannot be expected to bear the entire burden of retraining or should the individual be expected to assume full responsibility. In recent years, many programs have been adopted by the Federal Government to help states meet these retraining responsibilities. The Manpower Development Training Act, The Economic Development Act, and the Economic Opportunities Act will help provide some flexibility in setting up educational programs that will provide for the retooling of workers. In the future, this type of training or retraining may be as important and as large in scope as preparing new entrants for the labor force.

The research that has been done on mobility has implications for providing training for skill improvement and/or replacement. Most of the labor market studies indicate that workers are willing to move to almost any section of the country if they can be provided with the proper skills necessary to perform in a new occupation. Some of the programs in the past have put emphasis on training workers for local jobs only. Many of them still confine the training programs to workers for jobs within the states in which the program is provided. We must broaden our vision of this type of program and begin training and retraining for the national market and supplementing the training with public policies of whatever type necessary in order to move the workers into the jobs that exist.

Some Gaps in Mobility Manpower Research

The research that has been done in manpower and mobility has amply pointed out the types of occupations at the national level for which the labor force of the future must be trained. Research and projections of occupational and industrial employment at the state-regional level is not nearly as complete.

The research that has been conducted has many implications with respect to the type of training that will be appropriate in the future. Most of the research, however, has been very general in regard to the types of changes required in training programs. From the research that has been conducted, the educational planner would have a hard time determining specifically what changes to make in the training programs that are being offered at the high school and post-high school levels.

The research that has been conducted in manpower and training needs has given some idea of the aggregate cost governments must bear in providing for occupational education. This research gives very little indication, however, of how this cost will be borne by the Federal, state and local units of government. Future research might concentrate on the cost and benefits of vocational education as it relates to specific areas of the country. This could have serious implications regarding how the cost should be allocated.[33]

Models for making migration and population projections have not been developed to the extent that educational planners can readily adapt them to smaller areas. The fact that people move to different regions of the country and between states has some very important implications for educational planning. However, a local school unit needs to know precisely how many new students they can expect over a period of years and how many will be moving out of the area.

More precise information is also needed as to the specific labor market area for which a local community should train its workers. It is not yet clear how much emphasis a local school unit should put on training for the local market, the state market, the regional market and the national market. This has serious implications in terms of trying to determine the program mix that would be offered in a given school situation.

Economists have developed very elaborate and sophisticated models to determine the size and location of industrial plants. These models have been applied to service installations and other non-profit institutions. However, very little research has been conducted to determine economies of size and location with respect to occupational educational systems.

---

[33] W. Z. Hirsch, E. W. Segelhorst and M. J. Marcus, Spillover of Public Education Costs and Benefits, Los Angeles: Institute of Government and Public Affairs, University of California (1964).

Some of the research findings on migration and mobility should help the economists develop transportation functions with respect to getting people to school and located in jobs after completion.

Very little research has been conducted that follows up the migrant to determine adjustment problems to a new geographic area or to a new employment situation. This is probably the biggest gap in mobility research. It is possible that the educational establishment could make a major contribution to a more mobile labor force if better information were available on problems of entry into a new occupation and the social adaptations that are required. The Upjohn Institute recently did some significant work in this area under sponsorship of the Office of Manpower, Automation and Training.[34]

Research in manpower and mobility in general needs to be more concerned with decision making within the vocational educational system. There is too much loose motion in the research in that we are forced to try to identify implications and draw conclusions for all kinds of public decisions, when they could be tied specifically to at least some decision that needs to be made. Some of the more important types of decisions for vocational education were enumerated in the beginning of this paper. I would suggest that future research in this area try to orient itself to the institutions that are affected and which are primarily responsible for adjustments that have to be made to a growing economy. Too much of our research has been conducted in a vacuum. Greater attention should be given by the researcher, regardless of profession or area of research, to a translation of his ideas into the world of decision making.

---

[34] A. H. Belitsky and H. L. Shippard, The Job Hunt: Job Seeking Behavior of Unemployed Workers in a Local Economy, Washington: W. E. Upjohn Institute for Employment Research (1965).

ANNOTATED LIST OF REFERENCES

1. Agricultural Policy Institute. 1965. Developing human resources for economic growth. North Carolina State University, Raleigh.

This is a kit of materials that contains six leaflets relating to the development of human resources for economic growth. Specific leaflets are entitled: (1) People, Jobs and Economic Growth; (2) Our Manpower Employment Situation; (3) American Workers on the Move; (4) When People Move; (5) Education and Training; and (6) Policy Alternatives for Increasing Employment Opportunities. All of these materials are related to the problems of changes in the job market and the necessity for generating a mobile work force. Many of the public policies that might be appropriate to facilitating adjustments are considered in this series.

2. Agricultural Policy Institute. 1962. Educational needs for economic development in the South. API Series 7. Papers presented at a conference sponsored by the Agricultural Policy Institute at North Carolina State University in cooperation with the Southern Regional Education Board, Atlanta. North Carolina State Univesity, Raleigh.

The primary purpose of this conference was to bring together civic leaders from throughout the South to seek a better understanding of the importance of investment in education as an aid to economic development of the region and to explore means for achieving the quantity of educational investment that will be needed in the future. Papers presented at the conference reviewed the significance of investment in education and of technological and scientific societies such as the United States.

It was noted in the conference that of general concern are the twin problems of education and economic adjustment of the people in our population who have been caught in the backwash of technical change and who have been stranded by the spurting tide of urban growth. The process of adjusting upward the educational and economic worth of these people will be a task for all levels of education, government, and indeed, society itself. It was emphasized that education should be treated as an investment rather than as a consumption item. Papers presented indicated the tremendous returns of investments in education

and also the fact that investments in education are higher in the South than in the rest of the country.

3. Agricultural Policy Institute. 1965. Public institutions and services in a growing economy. North Carolina State University, Raleigh.

    This kit of educational materials concentrates on the adjustment problems of many public institutions in response to economic growth. Leaflets included in this series are: (1) Local Government in a Growing Economy; (2) Financing Public Institutions and Services in a Growing Economy; (3) Good Schools for Small Communities; (4) Welfare Programs in a Growing Economy; (5) Changing Health Facilities in a Changing Society; and (6) Land Use Planning in a Growing Economy. This series of materials is built around the basic process of growth that results in some communities growing at a rapid rate, some declining, and some remaining static. It concentrates on the adjustments that are required in each of these three situations.

4. Agricultural Policy Institute and Center for Agricultural and Economic Adjustment. 1962. Our rural problems in their national setting. A report containing papers presented at the Third Annual Farm Policy Review Conference. Ames, Iowa.

    A critical look is taken at the many problems of rural areas in a growing economy. Several Federal programs that have provisions for training such as the Area Redevelopment Act and the Manpower Development and Training Act are appraised. There is also a good appraisal of national policies on full employment.

5. American Bankers Association. 1964. Proceedings of a symposium on employment. New York.

    This symposium attempted to give all aspects of the employment problems of the United States a full hearing. The various alternative ways of coping with unemployment, regardless of what form it takes, are debated and analyzed by government officials, economists, businessmen, and labor leaders.

6. Bishop, C. E. 1964. Agriculture and economic development. Agricultural Experiment Station Bulletin No. 556, Virginia Polytechnic Institute, Blacksburg.

    This is a compilation of lectures presented by Dr. Bishop as a visiting scholar in the Department of Agricultural Economics and Rural Sociology at VPI. This report has specific relevance to land-grant universities and it analyzes five basic areas: (1) responsibilities of land-grant colleges and universities in economic development and public affairs, (2) agriculture and a full employment economy, (3) poverty in perspective, (4) new directions in farm policy, and (5) an educational program in economic development.

7. Bishop, C. E. and G. S. Tolley. 1962. Manpower in farming and related occupations. Appendix II in Education for a Changing World of Work. OE-80025. U. S. Government Printing Office, Washington.

In this study a close examination is made of the structural changes that are taking place in agriculture and the implications they have for vocational training of rural youth. The study concentrates on the number of job opportunities that will be available for rural youth in agricultural occupations in the future and emphasizes the need for education and training to help youth adjust to nonfarm occupations.

8. Bowles, G. K. and J. D. Tarver. 1965. Analytical groupings by counties. Volume II in Net Migration of the Population, 1950-60, by Age, Sex, and Color. U. S. Department of Agriculture. U. S. Government Printing Office, Washington.

This volume presents net migration estimates by age and sex, and by color where appropriate, for regions, divisions, states, metropolitan and nonmetropolitan areas of states, economic subdivisions, subregions, and for counties grouped by (1) percent urban in 1950, (2) 1959 median family income, (3) eligibility status for Area Redevelopment Act Assistance.

9. Committee for Economic Development. 1959. Paying for better public schools. New York.

In this publication, the committee recommends four kinds of action to overcome the main financial obstacle to the improvement of the public schools. These include: (1) new attack on redistricting -- by state laws, (2) state assistance to local school districts, (3) Federal support for education in the poorer states, and (4) citizen efforts to improve the schools.

This report indicates that a complete school program can hardly be

conducted by a unified school system with much less than 2,000 students. In view of this, the 45,000 school districts existing at the time of this study should be consolidated into something less than 10,000 systems.

The second recommendation with respect to state assistance to local school districts is closely tied up with the first. Unless the basic school districts have achieved reasonable size and financial strength, such a program that insures each district within the state the financial ability to support its schools is hardly feasible.

In general, the committee did not favor expansion of the federal support of schools throughout the country. The report opposed the proposal for general support of school systems on a nationwide basis. It did, however, indicate a need for federal supplementation of state and local funds for the improvement of schools in the poorer states. It was recommended that the Federal Government make financial grants to support public schools in those states where income per public school child is substantially below the national average.

It was strongly recommended that effective local action for better schools be taken. Organized citizen interest will attract and stimulate strong professional leadership in the school, which, in turn, will enlist further public support.

10. Committee on Labor and Public Welfare. 1965. The migratory farm labor problem in the U. S. Report No. 155. U. S. Government Printing Office, Washington.

In this report, a comprehensive look is taken at the migratory farm labor problem in the United States. The basic report is presented by Sen. Harrison A. Williams, Jr. of New Jersey from the Committee on Labor and Public Welfare. However, the entire statement contains individual views that support or argue contrary to the report given by Sen. Williams.

11. Drabick, L. W. 1963. The vocational agriculture student and his peers. Educational Research Series No. 1. North Carolina State University, Raleigh.

This was a cooperative study between the Departments of Agricultural Education and Rural Sociology at North Carolina State University, which attempted to show the relationship between certain social and economic factors to occupational and educational plans. Also, the study sought to compare the plans for vocational agricultural students and students from other curricula.

One of the conclusions of the study is that most students, regardless of curriculum, expect to attend college. For most students, high school represents a preparation for college or a way-station out of the small community.

The study revealed that, for most students, decisions regarding educational matters are made without a major external reference. Parents were perceived to be in agreement with most occupational decisions of students. Vocational agricultural students less often believe their parents agree with their decisions, and fathers were not so frequently perceived in strong agreement as were mothers. As a usual thing, students in other than agricultural curricula reported no degree of opposition whatsoever to their occupational choices on the part of their parents.

It was found that most students are a very upwardly mobile group--seeking education in very large numbers and aspiring to occupations of great prestige. In almost all instances they expected to better the occupational and educational achievements of their fathers.

A significant conclusion of this study is that there is no support for any contention that enrollment in vocational agriculture in any way depresses the aspirations of students. Differences in occupational and educational aspirations quite likely are more a result of intelligence difference than of membership in a category of curriculum.

12. Gordon, R. A. 1964. Twenty years of economic and industrial change. Proceedings of a seminar on Manpower Policy and Program. U. S. Government Printing Office, Washington.

This is a proceedings report on a seminar on manpower policy and programs sponsored by the Administration of the U. S. Department of Labor and the Office of Manpower, Automation and Training. It is the third in a series of seminars and reports on issues and policy in this country. In this report, Dr. Gordon, who was formerly the chairman of the Department of Economics at the University of California at Berkeley and currently is serving as a professor there, makes an address entitled Twenty Years of Economic and Industrial Change.

13. Hamilton, C. H. 1965. Educational selectivity of migration from farm to urban and to other nonfarm communities. In Mobility and Mental

Health. Mildred B. Kantor, Ed. Springfield, Ill.: Charles C. Thomas, Publisher.

Dr. Hamilton bases this study of rural-urban net migration on the total adult population of the United States. The most important finding, according to him, is that age is related to educational selectivity in rural-urban migration. The process of rural-urban migration begins in early youth where it is apparently selective of both the least and most educated, but more selective of the most educated than the least. It is noted that after surplus farm youth move rapidly into urban and other nonagricultural communities during their late teens and early twenties other conditions operate in such a way so as to change the selection pattern from that of the most educated youth to the least educated adults. This shift continues through middle age to the older ages where it appears that the selective process either ceases or reverses its direction to a small degree.

14. Highberger, R. L., B. I. Jeffrey, V. R. Kwett, S. Newsom, V. C. Payne, and I. V. Sperry. 1965. Educational and vocational goals of rural youth in the South. Southern Cooperative Series No. 107. North Carolina Agricultural Experiment Station, Raleigh.

Specific objectives of this study were: (1) to describe similarities and differences in educational goals of rural youth and of their parents for them, and (2) to determine the relationships of the similarities and differences in these goals to such factors as: (a) geographic area, (b) state, (c) sex, (d) level of living, (e) farm or nonfarm residence, (f) family size, and (g) membership in FFA, FHA or 4-H Clubs.

The differences between boys and girls in regard to vocational interests, educational attitudes, as well as the degree of similarity to their parents' preferences for them, were strongly pronounced. Girls had a more favorable attitude toward education and had attitudes more similar to those their parents hoped they held than did the boys. Girls and boys reported considerably more strong urging to continue their education from their mothers than from their fathers.

There was no significant difference between members and nonmembers of FFA, FHA, or 4-H Clubs with regard to educational or vocational plans or toward the value of an education. It was found, however, that members of these groups had a greater interest than nonmembers in mechanical and outdoor type activities and lower interest in clerical, computational and literary type activities.

It was found that a greater value was placed upon an education by youth from a higher middle level of living background than those from a low level of living background. A lack of finances apparently is very important to youth in making college plans. Whereas the majority of all youth expected some financial help from their family, sharp differences were noted between the youth from high, medium and low levels of living backgrounds. Youth from middle and particularly low levels of living backgrounds may have been realistically appraising financial resources that would be available to them.

The study then supports the current concern over the economically deprived in that it appears that many of rural youth's educational and occupational expectations and those their parents hold for them are closely related to the family's level of living status.

15. Jones, E. W. 1964. People, our most important resource. Agricultural Extension Service, North Carolina State University, Raleigh.

This study is a concise statement of the processes of economic growth and the implications this process has for developing human resources. The report summarizes many of the major changes that have been taking place in the economy and the direction of these changes for the future. Implications for education are highlighted.

16. Lansing, J. B., and W. Ladd. 1964. The propensity to move. U. S. Department of Commerce. U. S. Government Printing Office, Washington.

In this report it is shown that the more mobile groups are those less well represented in the population of the redevelopment areas where there are fewer younger adults and fewer people with a high level of education than in the rest of the country. It indicates, among other things, that if it were possible to give people definite assurances a move could be successful in terms of finding satisfactory employment, and if other obstacles could be removed, most people would be willing to move. All things being equal, however, they would prefer to remain in the area where they are now living.

17. Le Ray, N. L. and W. W. Reeder. 1965. Ex-farm operators in a low-income area. Bulletin No. 67-2. Cornell University Agricultural Experiment Station and New York State College of Agriculture in Cooperation with the U. S. Department of Agriculture, Ithaca.

This is the second in a series of reports of a study of adjustments in human and physical resource use in a low-income area of northern New York State. The series is designed to determine the nature and process of socioeconomic adjustment in the period 1950-1962 for a population of farm families with different resource characteristics and levels of family income.

The results of this phase of the study indicate that except for the size of the farm business and the combined age and physical condition of the family head there were almost no differences in farm and household characteristics between continuing farmers and ex-farmers. The reasons for leaving suggest that an index of the farm operator's state of health might have been a significant factor.

This study indicates that migration from agriculture is less highly selective in terms of the physical resource characteristics of the family and the demographic characteristics of the family than might have been anticipated. The data revealed indicate that in a situation such as that faced in agriculture the degree of selectivity is greatly reduced. This has real implications for policy since a lack of selectivity would indicate less need for special programs for different groups and greater emphasis on the problems which are characteristic of the entire group.

18. Le Ray, N. L., W. W. Reeder, and W. W. Craig, Jr. 1965. Factors influencing occupational decisions in a low-income area. Bulletin No. 67-1. Cornell University Agricultural Experiment Station and New York State College of Agriculture in cooperation with the U. S. Department of Agriculture. Ithaca.

This is the first report in a series of special studies of human and physical resource adjustments in a low-income area of northern New York State. The publication is concerned with factors which influence occupational decisions. It is based on the responses of 299 individuals who were interviewed in 1963.

The study concludes that occupational decisions are usually based on a small cluster of relevant reasons or components. This study indicates that each of these components has definite direction and that, after an occupational decision has been made, the decision-maker will readjust his relevant cluster of cognitions to bring it more in line with whatever action is taken. This indicates that a built-in error in data will be obtained whenever people are interviewed regarding decision-making components after the action has been taken.

Because of the general imbalance in terms of excess labor in agriculture, this study is very significant in determining the reasons for shifting from farming to nonfarming activities. Reasons given favoring a shift from full-time farming to full-time nonfarming activity include: (1) financial gain, (2) poor health, (3) economic security, (4) farm income too small, (5) not enough family help, (6) easier hours and more free time, (7) a lack of resources, and (8) family members' expectations.

Some of the reasons given for disfavoring the transition from full-time farming to nonfarm activities include: (1) like farming and the associated way of life, (2) farming is a more independent way of life, (3) could have remained in farming, (4) family and friends expected me to stay with farming, and (5) would lose the security of farming.

19. Matthews, R. G. and L. W. Drabick. 1965. Reasons for selection of expected occupations: by race and sex. Educational Research Series No. 7. North Carolina State University, Raleigh.

In this study, an attempt was made to analyze and classify with regard to race and sex the reasons given by a sample of North Carolina high school seniors for entering specific occupations. The authors classified the variety of reasons given for occupational choices into three main categories, (1) general interest, (2) reward, and (3) altruism, and then compared the reasons with regard to race and sex differences.

Data were compiled from questionnaires answered by 985 high school seniors, of whom 271 were white males, 315 white females, 167 Negro males, and 232 Negro females.

After a thorough study of the data, it was found that two conclusions stood out as most important. First, the reasons guiding white and Negro students into occupational choices seem to differ significantly, with the Negro sampling giving more reasons of altruism and fewer reasons of reward than the white sampling. Second, reasons guiding male and female students into specific occupations seem significantly different. The females gave more reasons of altruism and fewer reasons of reward than did their male counterparts.

20. Moore, E. J., E. L. Baum, and R. B. Glasgow. 1964. Economic factors influencing educational attainments and aspirations of farm youth. Report No. 51. Economic Research Service, U. S. Government Printing Office, Washington.

This study (1) examines the quality and quantity of economic resources available to farm youth for securing post-high school education, (2) determines the educational attainment and aspirations of farm youth for post-high school training, (pp. 15-21) and (3) relates the educational aspirations of these young people to plans for post-high school training.

21. Sjaastad, L. 1960. Trends in occupational structure and migration patterns in the United States with special reference to agriculture. Paper presented at conference on Labor Mobility in Agriculture at Ames, Iowa. University of Minnesota, St. Paul.

In this paper, Mr. Sjaastad examines the relationship between migration and the occupational structure of the U. S. economy.

A review of the patterns of geographic movements over a period of time reveals that the trend in the United States is toward ever-increasing labor mobility, both geographically and occupationally.

Off-farm migration has increased considerably over the last thirty years. However, if for no other reason than complete exhaustion of the farm population, this trend obviously cannot continue indefinitely at its present high rate. The variable which seems to hold the key to the fluctuations in off-farm migration, Sjaastad asserts, is the amount of unemployment in the total labor force.

The author concludes that the "long-run prospects of American agriculture are improving with each passing year. As the relative size of the farm sector diminishes, a greater ease of adjustment to even further revolutions of supply should result."

22. U. S. Department of Labor. 1965. Manpower and automation research through June 30, 1965. U. S. Government Printing Office, Washington.

The Office of Manpower, Automation and Training conducts and coordinates research in the broad areas of manpower resource requirements, development and utilization, and automation and technological change for the purpose of developing information which will lead to programs and policies needed to deal with the problems of unemployment. This publication lists contracts and grant research sponsored by the office to meet this responsibility.

23. U. S. Department of Labor. 1964. Manpower Research and Training under the Manpower Development and Training Act. U. S. Government Printing Office, Washington.

This is a full report of the operations of the Manpower Development and Training Act for the calendar year 1963. This represents a continuation of a review and evaluation of programs in progress under the Manpower Development and Training Act that was made one year earlier for the last five months of 1962.

24. U. S. Department of Labor. 1963, 1964, 1965. Manpower reports of the President and reports on manpower requirements, resources, utilization and training. U. S. Government Printing Office, Washington.

Each year, as required by the Manpower Development and Training Act of 1962, the President presents his manpower report and that of the Department of Labor on manpower requirements, resources, use and training.

Current programs are reviewed and additional action is proposed in certain broad areas such as youth unemployment, poverty, education, places of high unemployment, overtime work, racial discrimination and unemployment insurance.

In 1964, the Committee on Manpower was established for the purpose of appraising the nation's present and prospective manpower resources and requirements. Only with thorough appraisal and long range assessment of these factors can we maintain full effectiveness in carrying forward an active manpower policy.

It is pointed out that while the nation is prosperous, strong and materially richer than at any time in history, we now must focus on how far we can go and how to get there, rather than on how far we have come, if we are to retain our place of economic superiority in the world of today.

25. U. S. House of Representatives. 1962. Education for a changing world of work. Document No. 92. U. S. Government Printing Office, Washington.

This is the summary report of a panel of consultants on vocational education requested by the President. The advisory body, drawn from the educational profession, labor, industry, agriculture, the lay public and representatives from the Departments of Agriculture and Labor, was asked to review and evaluate the current national vocational education acts and make recommendations for improving and redirecting the programs. The panel made an intensive survey of the educational and vocational education needs of the country and made its report and recommendations in November 1962. A more detailed statement is contained in Office of Education Publication No. 80021.

26. Wilber, G. L. and T. W. Rogers. 1965. Internal migration in the United States 1958 to 1964: a list of references. Sociology and Rural Life Series No. 15. Agricultural Experiment Station, Mississippi State University, State College, Mississippi.

The authors of this publication seek to update an earlier list that covered materials published between 1940 and 1957. Only reports relative to migration in the United States between 1958 and 1964 are included.

27. Youth Work Program Review Staff. 1964. Getting hired, getting trained: a study of industry practices and policies on youth employment. National Committee on Employment. New York.

This is a study of industry's practices and policies in regard to employment of youth. The research was done in the Hartford, Winston-Salem and Charlotte labor market areas with the intention of appraising current aspects of the problem and suggesting some directions that the communities might explore in seeking solutions.

Specific barriers to successful employment for youth were outlined. For girls, these were found to be noncompletion of high school and nonacquirement of usable clerical skills. The barriers for young males included not only educational requirements but also age, draft status and experience.

Conclusions reached in the study as to employers' opinions on what youth need and what industry and schools can do to eliminate these barriers reflected several common themes--the need for better basic

education, more pre-employment occupational training and increased motivation.

In the meantime, it is suggested that while an easy solution is hardly in sight the problem of unemployed youth could be more thoroughly assessed if an effort were made to make fuller use of existing facilities and resources.

MANPOWER SUPPLY IN THE UNITED STATES

Howard Rosen
Assistant Director, Research Office
Manpower Administration, U.S. Department of Labor

INTRODUCTION

I have been asked to look at how this country develops its manpower supply for operating our complex and large economic system.

The word "supply," as used in this paper, refers to people--our human resources. We are not dealing with an inventory of inanimate objects that can be put into a warehouse until needed. We are thinking about some 78 million people in our labor force who served us coffee this morning, are digging coal, are doing complex mathematical computations related to space exploration, are designing automobiles, repairing dishwashers, teaching our children and performing the thousands of jobs which makes our economic system operate.

Let me raise six questions for your consideration about the ways in which we develop our manpower supply in this country.

1. Do we really have a unified system for preparing our supply of manpower for jobs in the Nation's economy?

2. Do we have any unplanned process of developing manpower supply?

3. Does the process (or system) operate as effectively for all occupations or groups in the labor force?

4. Is the process (or system) wasteful and does it contribute to loss of talent and brain-power?

5. Is the process (or system) democratic and nondiscriminatory against persons because of race, sex or low income?

6. Does the process (or system) contribute to unemployment and restrict economic growth?

I hope to touch upon most of these questions and make some recommendations and suggestions at the conclusion of this paper about the points raised during my discussion. References are made throughout the paper to sources of data. In addition, a selected bibliography of basic sources of information on manpower supply and demand is given in the appendix.

When we look at the ways in which our labor force is trained, we are first struck by the variety of institutions and techniques we use for this important task. Our elementary schools, high schools, colleges and professional schools are the basic institutions which provide the framework for manpower training. In addition, we depend upon technical institutes, junior colleges, vocational high schools, correspondence schools, on-the-job training by industry, military training and apprenticeship for the more formal types of training. An untold number of workers "pick up" their skills through informal means by moving from employer to employer and observing processes and operations. More recently, we have used government-sponsored programs through the Manpower Development and Training Act for training workers. The Neighborhood Youth Corps and the Job Corps are other examples of the government training programs engaged in providing training to workers.

Not only do we use a variety of ways of training but we operate a large educational and training program. The vastness of our program is illustrated by the following statistics: about 54 million persons 5 to 34 years old were enrolled in school or college in the fall of 1965. Approximately 32.5 million youngsters were going to elementary school (grades 1 to 8); another 13 million were enrolled in high school (grades 9 to 12); and about 5.7 million were attending college or profession school; (2.6 million youngsters were in kindergarten).

In order for us to understand how the matching process of supply takes place with jobs in the economy,it is necessary for us to look at the occupational distribution of our labor force.

In 1965, about 32 million persons (44.5 percent) in our labor force had white-collar jobs. Of this total, 8.9 million were professional and technical workers, about 7.3 million were managers, officials, and proprietors, some 11.2 million held jobs as clerical and kindred workers and about 4.7 million were employed as sales workers.

Among the 26.5 million blue-collar workers employed in 1965, 9.2 million worked as craftsmen, 13.4 million were employed as operatives or semiskilled workers and 3.9 million were classified as nonfarm laborers. In 1965, 9.3 million of our labor force were employed as service workers. Within this occupational category, about 2.3 million were employed as private household workers and 7.1 million held service jobs outside private homes.

Some 4.3 million persons were employed as farm workers. Within this occupational category, about 2.2 million worked as farmers and farm managers and 2.0 million were employed as farm laborers and foremen.

In looking at these millions of workers and the kinds of jobs they held, it becomes immediately apparent that the kind of training and education needed varied considerably. For example, the training and educational time could run from one day for a laborer or a low-skilled service worker to almost two decades for some of the professional jobs.

As a Nation we appear to have done a far better job of preparing white-collar workers for jobs in offices and in the professional and technical occupations than we have done in preparing our blue-collar workers. For example, enrollments in commercial and business programs in the high schools are roughly double the total enrollments in all other job-related vocational programs in these institutions (home economics is not usually job related and is therefore eliminated from these estimates).

Yet we had twice as many skilled and semiskilled blue-collar workers (22.6 million) as clerical workers (11.2 million) in 1965. According to the most recent estimates, the increase in college graduates has been so great and is expected to increase so rapidly during the next decade, that in aggregate terms, the supply and demand for personnel in professional and related work is expected to roughly balance, despite serious shortages in some areas.

While we have been viewing with pride the steady increase in the average educational attainment of our work force, there is clear evidence that for the most disadvantaged among us the improvement has been painfully modest. During the past decade, the number of students entering college rose by more than a fourth--in numerical terms from 301 to 378 out of every thousand who had managed to get as far as fifth grade earlier; and those completing high school rose more than a fifth, again in numerical terms from 581 to 710 per thousand. But among those who never got a decent basic education--those who dropped out before entering the eighth grade--the decline was a mere 25 out of every thousand; and at the end of the decade nearly 5 percent of the students were in this category.

For this group and for others who dropped out before finishing high school, our system of education has quite literally been a failure. Our failure to provide millions of our blue-collar workers with basic educational skills essential for most kinds of formal or informal training has probably been a significant factor in contributing to our economic problem of high unemployment until 1965 and has undoubtedly contributed to the current 1966 shortage of skilled manpower.

For years we have known that we have not been training enough skilled workers. Our formal training programs were turning out only token numbers of workers needed and we casually accepted the fact that millions of our workers were learning their skills in a haphazard and inefficient manner. As a Nation, we have never faced the fact that we were tolerating an unequal training program that was either bypassing millions of future workers or providing them with inadequate skills and education.

Before exploring the ways we train our manpower, let me just quickly refer to some industrial employment changes which will provide us with a necessary framework as we think about manpower supply.

Industry Employment Shifts

We have a dynamic economy. This is best illustrated by the kinds of industrial and employment shifts we have experienced in recent years. One of the most striking changes of the past 50 to 60 years has been the shift from farm to nonfarm work. The percentage of the civilian labor force engaged in agricultural acitivites declined from 38.8 percent in 1900 to 6.1 percent (1 out of 16) in 1965. In 1910, about 1 out of every 3 workers was employed in agriculture.

This massive shift away from agriculture to other economic activities has drastically affected the kinds of industries in which our labor force is employed so that today there are three times as many jobs in trade, finance, service, and government as there were nearly 50 years ago. Within the nonfarm sector of employment there has also been a significant move away from goods-producing industries such as manufacturing, mining, and construction to service-producing industries such as trade, government, service, finance, insurance, real estate, transportation, and public utilities.

By 1965, we had some 38.6 million employed in service-producing industries as compared with the 26.4 million working in goods-producing industries. Between 1947 and 1965 the number of workers employed in service activities rose by 13,209,000 as compared with a decrease of 330,000 in goods-producing industries.

The industrial shifts in our economy are extremely important to those concerned with developing our manpower supply. These industrial shifts essentially signify occupational shifts. New kinds of jobs and different kinds of jobs are required by new and different industries. Educators must be alert to the occupational mix of American industries and prepare workers for jobs as employment shifts occur.

Fortunately, despite the prophets of doom and gloom, social and technological change does not occur so rapidly that educational and training plans cannot be adjusted to meet these changes. The tragedy occurs when the dead-hand of tradition, vested interests and bureaucracies try to prevent change and perpetuate outmoded concepts in order to forestall needed educational and training changes in our educational system.

In turning to the question of manpower supply let us look at selected aspects of supply in two broad areas: white-collar jobs and blue-collar jobs. Within these broad areas, I want to look more closely at professional and technical manpower supply and the supply of skilled manpower.

I. Professional and Technical Manpower

The bulk of our professional and technical manpower is trained in colleges and universities. A recent 5-year follow-up study of June 1958 college graduates indicates a considerable degree of satisfaction with their training and their occupational outcomes.[1]

Before we turn to the graduates we must note that the road to graduation is by no means smooth. Perhaps half of those who enroll fail to graduate, according to comparisons of freshmen enrollments and graduations 4 years later (see Table 1); a good many of those who fail to get 4-year degrees may get associate degrees for lesser periods of study. Our information is seriously incomplete on this point, and it is believed that the group that does complete a planned period of training represents only a fraction of the dropouts, who totaled nearly 470,000 of the 930,000 who enrolled in college for the first time in 1960.

Among those who do graduate are many who have shifted course while

---

[1] Five Years After the College Degree, Part II, Employment, A forthcoming study prepared by the Bureau of Social Science Research, Incorporated, for the National Science Foundation.

Table 1. First-Time College Enrollment Compared With 4-Year Bachelor's and First-Professional Degrees Conferred 4 Years Later: United States and Outlying Areas, 1957-61 to 1960-64

Fall of--	First-time enrollment	Year	4-year degrees conferred	Degrees as a percent of first-time enrollment
1957	729,725	1960-61	365,337	50.1
1958	781,075	1961-62	382,822	49.0
1959	826,969	1962-63	410,421	49.6
1960	929,823	1963-64	460,467	49.5

SOURCE: Circulars on Opening (Fall) Enrollment in Higher Education and Earned Degrees Conferred, U. S. Department of Health, Education, and Welfare, Office of Education.

in college. For example, a study of the retention rates of freshmen engineering students indicates that the ratio of engineering graduates to freshmen enrollees dropped from about 65 percent for the 1953-54 graduating class to less than half (45.5 percent) in the 1960 class--and since there were some transfers in as well as out, the actual retention rates were lower yet.

The number of graduates attaining degrees has been rising sharply; and in the school year 1963-64, some 1,474 institutions of higher education granted some 460,000 4-year degrees, and nearly 42,000 first professional degrees (which includes master's degrees in such fields as library science, law and medicine degrees and others requiring a specified course of study beyond the undergraduate level as a professional prerequisite).[2] In addition, approximately 101,000 second-level (master's degrees) and 14,500 doctorates (Ph.D., Ed.D.) were also given that year (see Table 2).

Women received 43 percent of the total degrees conferred at the bachelor's level, 12 percent of the 5-or-more years first-professional degrees, 32 percent of the second-level degrees (master's), and only 11 percent of the doctorates.

The largest number (112,503) of students earned their bachelor's and first-professional degree requiring less than 5 years in the field of Education (see Table 2). The second most popular degree field was in the Social Sciences (76,964) and the third was Business and Commerce (56,088). The fourth and fifth most popular areas were English and Journalism (35,233) and Engineering (33,353).

Within the Education field, the degree in Elementary Education (64,521) was most popular. In the Social Sciences, some 23,750 degrees in History were conferred. (An estimated 8,000 to 9,000 persons were employed as historians in 1965.[3] This estimate, of course, excludes high school history teachers. Many of those majoring in History will eventually end up as teachers of History or Social Sciences in high schools.)

---

[2] Summary Report on Bachelor's and Higher Degrees Conferred During the Year 1963-64, Washington: U. S. Department of Health, Education, and Welfare, Office of Education (1965), OE-54010-64.

[3] Occupational Outlook Handbook, Washington: U. S. Department of Labor, Bureau of Labor Statistics, Bulletin 1450 (1966-67 Edition), p., 204.

Table 2. Earned Degrees Conferred by Area of Study and Level, 1963-64

Area of Study	Level of Degrees			
	Bachelor's and 1st professional requiring less than 5 years	1st professional requiring 5 or more years	2nd Level (Master's)	Doctorate (Ph.D., Ed.D., etc.)
All areas	460,467	41,637	101,122	14,490
Agriculture	4,747	IN	1,145	488
Architecture	590	1,469	383	3
Biological Sciences	22,808	19	3,297	1,625
Business and Commerce	56,088	2,876	6,375	275
Education	112,503	430	40,710	2,348
Engineering	33,353	1,873	10,827	1,693
English and Journalism	35,233	85	4,807	570
Fine and Applied Arts	15,985	198	3,673	422
Foreign Language and Literature	12,363	2	2,319	374
Forestry	1,374	73	199	67
Geography	1,296	IN	306	67
Health Professions	11,590	13,834	2,299	192
Home Economics	4,906	IN	596	41
Law	196	10,828	641	30
Library Science	510	2,022	695	13
Mathematical Subjects	18,649	28	3,603	596
Military, Naval, or Air Science	2,457	IN	IN	IN
Philosophy	4,810	IN	514	137
Physical Sciences	17,510	17	4,567	2,455
Psychology	13,359	IN	2,059	939
Religion	3,662	5,057	1,355	306
Social Sciences	76,964	2,821	9,489	1,779
Trade and Industrial Training	2,001	IN	32	12
Other Fields*	7,513	5	1,231	58

* Category "Merchant Marine" has been combined with other fields.

NOTE: IN = Inapplicable.

SOURCE: Summary Report on Bachelor's and Higher Degrees Conferred During the Year 1963-64, U. S. Department of Health, Education, and Welfare, Office of Education, OE-54010-64.

Teaching is the largest of all the professions. More than 2 million men and women were full-time teachers in the United States in the 1964-65 school year and thousands of others taught part time.

Teaching offers the largest professional employment to women. Close to 1-1/2 million women are teachers, more than twice the number employed in nursing, the second largest field of professional employment for women.

Relationship Between Education and Work

The recent 5-year follow-up study by the Bureau of Social Science Research of the post-college careers of 1958 graduates, mentioned above, provides us with some significant information as to how our college graduate supply is matched with jobs.

The most popular occupational fields for men in 1963 were business, education and engineering.

For men, undergraduate major and amount of graduate education determined to a great extent the occupations held. The more "preprofessional" the undergraduate major the more likely was employment in the corresponding occupation. Thus, three-fourths of the engineering majors were employed as engineers. Natural science majors worked as natural scientists, as professionals in the health fields, or as teachers. On the other hand, social science majors, perhaps the least "preprofessional" were scattered throughout occupational fields with clustering in the unrelated fields of business, management and teaching. Fewer than 5 percent of the male social science majors had positions as social scientists.

The Bureau of Social Science Research study concludes that their evidence does not confirm the hypothesis that men college graduates use teaching as a stopgap occupation which they leave when they find better-paying opportunities or become better qualified through graduate study. Of the men who were teachers in 1960, 80 percent were still so employed in 1963.

Women, regardless of undergraduate major, were predominantly employed as teachers in 1963. Close to half of the women who had obtained a B.A. in 1958 were employed full time in 1963. And of this number, 67 percent were educators. Only graduates with degrees in the health fields were employed more often in the corresponding health occupations than in teaching.

Women showed much less occupational stability, primarily because so many of them (53 percent) left the labor force between 1960 and 1963. Highest retention was in teaching; 57 percent of those who were teaching in 1960 were still in this work in 1963 and only 39 percent of the teachers left the labor force over this 3-year period, as compared with 60 percent of the natural scientists and close to half of the women in almost all other fields.

The Bureau of Social Science's conclusions about these recent college graduates is worth repeating, "All in all, the impression conveyed by our findings is one of a thoroughly professionalized and occupationally committed group, whose primary ambitions are not for material rewards or rapid advancement, who are not especially concerned about a secure future (which they obviously take for granted) but who seek to make a good living, while performing interesting, useful and responsible work which will leave some time for study and for family life."[4]

These comments about graduates being able to find employment usually related to their studies must be understood in the context that recent college graduates have entered the world of work under exceptionally propitious conditions. The economic climate has been favorable and recent technological and social changes have put a premium on college education. In periods of reduced economic activity many workers have not been able to find jobs related to their training.

Supply of Doctors and Nurses

Let us look at one of the problems of manpower supply which is best illustrated through the medical profession. Medicine is a profession for which training capacity is relatively inflexible. Despite mounting pressure for more training capacity, only six new medical schools were established between 1953 and 1963. During the past decade, we have maintained a supply of physicians (276,500 in 1963) kept relative to the population growth only by the very substantial addition of graduates of foreign schools. Of the 8,000 physicians licensed for the first time in 1962, 1 in 5 was a graduate of a foreign school. Approximately one-third of the medical graduates in Canada each year migrate to the United States.

---

[4] Five Years After the College Degree, Part II, Employment, a forthcoming study prepared by the Bureau of Social Science Research, Incorporated, for the National Science Foundation, p. 170.

While the supply of physicians remains relatively constant, the supply of graduate nurses has increased quite rapidly. The increase, however, has not been as rapid as hospitals and the nursing profession would like. Between 1950 and 1960 the number of hospital nurses increased by more than 50 percent. Yet, during this period, the number of graduates of nursing schools expanded only slightly.

A good part of the recent increase has been caused by the new pattern of return of married women to the profession, particularly, by the return of those who were trained in the large classes of the wartime Cadet Nurse Corps. Another source of supply has been the graduates of foreign nursing schools.

Nursing represents one area of manpower supply which contains enormous reservoir of untapped resources. For example, the number of professional nurses not in the labor force in 1960 was equal to more than half of all the nurses in the labor force.

The Surgeon General's Consultant Group on Nursing has called for a goal of 560,000 nurses with diplomas or associate degrees and 120,000 with academic degrees. To meet this goal would require that the number of graduates of diploma programs be increased by almost 60 percent to 40,000 and that graduates from baccalaureate programs be doubled--or increased to about 8,000. Both of these goals represent a substantial challenge to educational institutions and hospitals.

The number of persons being trained in practical nursing has also increased rapidly, reflecting the benefits of job redesign to meet a serious gap in health personnel. Since aid for nursing was provided for under the federally aided vocational education program in 1956, enrollments have risen steadily. In 1964, 59,000 persons were enrolled in such programs, almost twice the number only 5 years earlier.

The increase in enrollment in practical nursing training has been accompanied by a sharp improvement in the quality of education and a rise in standards of practice and licensure. Today, all of the states license practical nurses.

Between August 1962 and September 1965, some 14,000 persons were enrolled in licensed practical nursing in insitutional training under the Manpower Development and Training Act. About 9 out of 10 licensed practical nurses found jobs after training.

If we are to achieve our manpower goals in the health field in the next decade, we will have to break down traditional barriers, create better incentives and offer more attractive training opportunities. Our ability to achieve the supply of manpower needed in the health field will affect the well-being of our entire society. This is one area where society's goals must be translated into very practical training plans for the years ahead.

Women also represent a vast resource for the health profession. For example, about two-thirds of the doctors in the Soviet Union and one-fourth of the medical students in England are women. We, on the other hand, have never made full use of the potential of women to our supply of doctors.

Scientific and Engineering Manpower

Within the professional and technical group of workers we had about 1.4 million scientists and engineers in 1963. Between 1930 and 1960, while the civilian labor force increased by 42 percent and professional and technical workers by 126 percent, the number of engineers rose over 290 percent and the number of scientists by more than 625 percent.

About 851,600 scientists and engineers were working in industrial establishments in early 1962. About 80 percent of this group were engineers, nearly 10 percent were employed as chemists, and about half of the remaining 85,000 were employed as physicists, geologists and geophysicists, and mathematicians.

Some 585,000 technicians, the workers who assist and support engineers and scientists, were employed in four major occupational groups. The engineering and physical science technicians were the largest--numbering about 255,000 or almost 44 percent of the total. Draftsmen made up another 36 percent, and the remainder were medical, agricultural and biological technicians or were in the miscellaneous group of "unclassified technicians."

According to the 1960 Census, 45.5 percent of engineers in the civilian labor force held no degree at all.[5] Of those engineers reporting their academic attainments, the greatest proportion (47 percent) held only the bachelor's degree. Only a small proportion reported a graduate degree--

---

[5] Scientific and Technical Manpower Resources, Washington: National Science Foundation (November 1964), MSF 64-28, p. 86. Since in many cases the Census information on job titles is frequently supplied by housewives the information on job titles and education may not be too exact.

slightly less than 1 percent at the Ph.D. level. Although there has been increasing emphasis on graduate work for engineers during the past several years, the need for formal education beyond the bachelor's degree has not become the requirement for entry into the profession as much as for scientific occupations.

Despite all the effort to entice students into the engineering field, the number of students receiving bachelor's degrees in engineering has been steadily declining since a high of 38,013 in 1958-59. During the 1962-63 school year only 33,328 men students received first degrees in engineering. Not only has the number been declining, but engineering degrees as a proportion of all fields has been decreasing.

Technician Training

The semiprofessional workers who assist and support professional workers have been among the occupations experiencing the sharpest employment increase in recent years. The total experienced civilian labor force grew by some 15 percent between the 1950 and 1960 Census. The occupational group, "professional, technical and kindred workers" increased 47 percent since the 1950 Census. The total number of technicians increased 142 percent over the decade, the largest increase occurring among the electrical and electronic technicians (680 percent).

By mid-1964, we had about 620,000 engineering and science technicians in our labor force. The Department of Labor's study of where workers with less than 3 years of college get their training indicated that among the technicians who had taken formal training in the electrical and electronic and other engineering and physical science technician fields, 34 percent of the training had been taken in technical institutes, 24.5 percent in the Armed Forces, 17.5 percent in correspondence schools and 4.4 percent in junior colleges.[6] In the medical and dental technician fields, more than 40 percent of the training has been taken in the Armed Forces, almost 40 percent in special schools, 7 percent in technical institutes, and 7 percent in junior colleges.

More than 40 percent of those who took medical and dental training had never had jobs in the fields for which they were trained. In contrast, more than 55 percent of the electronics and physical science technicians had used their training on their last job and about 14 percent had used it in a prior job.

---

[6] Formal Occupational Training of Adult Workers, Washington: U. S. Department of Labor, Manpower Administration (December 1964), Manpower/ Automation Research Monograph No. 2.

About three-fourths of the technicians claimed to have learned their current jobs through on-the-job training. More than a third of the technicians stated that on-the-job training was the most helpful way in which their jobs were learned. Only 11 percent of the technicians in electrical and electronic and other engineering and physical science jobs and only 25 percent among other technicians felt that formal training had been the most helpful way in which they learned their current jobs.

With the increasing shortage of scientists and engineers we will have to depend more on the technicians who assist and support them. Unless we do a better job of training technicians we will not be able to properly extend our current supply of professional workers.

The dissatisfaction with school preparation for work expressed by so many technicians undoubtedly reflects, in large measure, the inadequacy of training received at the high school level or in a limited number of college courses. Department of Labor recruitment studies show that students who are well trained formally for technician jobs have better employment opportunities than those who "pick up" their training informally.

In view of the dissatisfaction with school preparation, it would appear that the milieu in which training is given, the way it is given, the curricula and the duration of training should all be re-examined in light of the criticism. This is especially important in order to find the means to attract and hold youngsters who do not now develop their abilities to their highest potential because they do not see the relevance of the high school and early college programs to their interest and needs.

Immigration

We have been extremely fortunate in that immigration has made a most important contribution to supply despite restrictive legislation. Most Americans do not realize that about 29,000 professional and technical foreign workers came to work and live in this country last year. If each one of these workers represented a minimum investment of $35,000, this accounted for an investment of more than $1 billion of other nations which we have gained in 1 year.

II. Blue-Collar Workers

Let us now turn to the preparation and training of some of the 26.5 million blue-collar workers in our labor force. The group I want to concentrate upon among these workers is the 9.2 million workers who are classified as craftsmen or skilled workers.

As indicated earlier, our blue-collar workers receive their training from industry (apprenticeship and on-the-job), military establishments, high schools, vocational schools, correspondence schools and many of them just "pick up" their skills by moving from job to job.

To get the proper perspective on the effect of training on this segment of our work force, the Research Office of the Manpower Administration of the U. S. Department of Labor had a nationwide survey conducted in 1963 of the vocational training background of workers between the ages of 22 and 64 who had completed less than 3 years of college. This group of workers accounted for the 52.1 million of the 60.8 million adults in the civilian labor force at the time of the survey.[7]

Our survey showed that 47 percent of the 60.8 million workers or 28.5 million had less than 3 years of college and had had no formal vocational training. Half of this group had never gone beyond elementary school; only a little more than one-fourth of them had completed high school.

Two-thirds of the workers reported that they had begun their most recent training before the age of 25, and half of these had done so before reaching 18.

Among the craftsmen group, where the average years of school completed was just under 12 in 1962, high school training was substantial. Apprenticeship was the dominant source of instruction for construction craftsmen, machinists, and utility linemen and servicemen. The Armed Forces were the dominant source of training for bakers and mechanics.

If not quite half of the work force had training, how did these workers learn their jobs?

According to the survey, most of them had "just picked up" the necessary skills and had developed them through informal on-the-job training and experience.

Only 2 out of 5 craftsmen and foremen in the survey had learned their trades through formal training. The extent of formal training varied considerably by occupation. For example, almost 3 out of 4 compositors and typesetters and electricians had learned their trades formally and only 28 percent of the painters and 31 percent of the carpenters had received formal training.

---

[7] Ibid. p. 1.

Apprenticeship has been traditionally considered the best way of training craftsmen. The modern version of apprenticeship calls for a combination of practical on-the-job training and formal classroom instruction to provide the broad theoretical background and practical skills needed to perform and understand the work of the particular craft.

Our data on apprenticeship confirm the fact that most craftsmen in this country "pick up" their skills or develop them through informal on-the-job training and experience. The number of workers classified as craftsmen increased by more than 425,000 (from 8.6 million to 9.0 million) between 1960 and 1964. However, during this period when employment was increasing on the average by more than 100,000 per year, only about 28,000 registered apprentices were completing training each year. (See Table 3.) The number needed to replace workers who die, retire or leave the skilled occupations for other reasons may be conservatively estimated at about 2 percent of those in the crafts. Thus, about 180,000 new workers should have been trained each year just to replace those who left. (Altogether replacement and growth needs would have required the training of 100,000 plus 180,000 [280,000] workers.)

About an equal number to the 28,000 who completed apprenticeship, may have left without completing programs, making a total of about 56,000 fully or partly trained. Perhaps half that number received training in non-registered programs. At best, we trained about 85,000 craftsmen a year--fully or partially in apprenticeship programs--when we needed 280,000 workers. Apprenticeship apparently only supplied a third of the total required to maintain the supply of trained workers who left the trades and the new workers who entered the trades because of growth.

Training in Industry

We know astonishingly little about industry's contribution to the skills of the work force. We do know that many large companies support apprenticeship programs; others support different kinds of formal programs for training workers who are not journeymen. The full extent of this

Table 3. Registered Apprentices in Training, New Registrations, Completions and Cancellations, 1960-65

Year	In Training on January 1	New Registrations	Completions	Cancellations	In training as percent of craftsmen employment
1960	172,161	54,100	31,727	33,406	5.0
1961	161,128	49,482	28,547	26,414	5.4
1962	155,649	55,590	25,918	26,434	5.6
1963	158,887	57,204	26,029	26,744	5.6
1964	163,318	59,960	25,744	27,001	5.5
1965	170,533	NA	NA	NA	5.4

NOTE: NA = Not available.

SOURCE: Trends in Apprentice Registrations, 1941-1964, U. S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training, Bulletin 65-151, June 15, 1965.

contribution has never been measured.

The Bureau of Apprenticeship of the Department of Labor conducted a survey of training in industry in 1962 which showed that only 1 of every 5 establishments in the survey sponsored some type of formal training of the 37 million workers employed in these establishments; only 2.7 million workers were actually enrolled in an employer-sponsored training program.[8]

Safety was the most prevalent type of training provided by employers. Only 1.5 million trainees were enrolled in courses designed to provide substantive skills. Of this number, those enrolled in programs involving a fairly specific industrial skill numbered fewer than 400,000. More than 58,000 training programs in the skilled trades were conducted in the 142,000 establishments which sponsored some type of training. The study showed that almost one-third of all establishments which sponsored training included apprentices in their training programs. The largest number of apprentices were enrolled in plumber or pipefitter, electrician, or machinist programs.

Armed Forces Training

The Department of Defense is clearly one of the largest, best equipped and one of the most important training institutions in the Nation. Many of the 12 million men and women who were in the Armed Forces during World War II received training which contributed to the Nation's growth and development in the postwar period. This contribution has never been fully assessed. We do know from recent evidence that Armed Forces training has played an especially important role in preparing workers for jobs in the air transportation and electronics industries.

At any one time, as many as 300,000 military personnel may be attending school.[9] More than 300 military schools are located in some 126 Army, Navy, Air Force and Marine Corps installations. Some 33 correspondence school centers offer over 2,500 courses and enroll nearly 1 million students throughout the world. It has been estimated that nearly 1,400 civilian jobs are taught to our military personnel and a good deal of the education and training to which career personnel are exposed may prove to be a valuable asset in civilian life (see Table 4).

---

[8] Training of Workers in American Industry, Report of a Nationwide Survey of Programs in Industry, 1962, Washington: U. S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training (1964), Report No. 1.

[9] Clark, Harold F. and Sloan, Harold S., Classrooms in the Military: Account of Education in Armed Forces of United States, New York: Bureau of Publications, Teachers College, Columbia University (1964), p. 6.

All of these categories, except for ground-combat, appear to suggest civilian as well as military occupations.

Each year, about 1/2 million men and women end their service with the Armed Forces. Many of these military personnel bring skills and training to the civilian labor force because of the education received while in the military service.

Vocational Education

Both vocational education and industrial arts education make important contributions to the skill level of this Nation's manpower supply. The full extent of this contribution has never been measured because vocational educators have failed to put "tracers" on their graduates. We do know that the first nationwide study of the employment experience of graduates of trade and industry courses in vocational schools showed that about a third of the vocational graduates took first jobs completely unrelated to the trade they studied.[10]

The more than 4 million persons enrolled in industrial arts education and the 4.6 million persons enrolled in federally reimbursed vocational education programs (in 1964) have been exposed to education and training which will enable many of them to perform complex and technical jobs in the world of work. Although many of the enrollees in vocational education (44.3 percent in home economics and 18.8 percent in agriculture) in 1964 were not being trained for occupations in greatest demand, at least some of their training was being put to use (see table 5).

Vocational educators have never squarely faced the issue of the mass exodus of manpower from farms in the United States. They have not acknowledged the net transfer of almost 25 million persons from farms since 1940. Today, the number of farm-reared persons 18 and over makes up approximately one-third of the total population of central cities. How many of these persons were equipped for urban employment when and if they were given vocational training in their local communities?

---

[10] The Process and Product of T & I High School Level Vocational Education in the United States, Pittsburgh: American Institutes for Research (September 1965).

Table 4. Seven General Categories of Work in Which Military Personnel are Engaged

Type of Work	Percent Distribution
1. Mechanics and repairmen: aircraft mechanics, electrical systems, automotive mechanics, etc.	25
2. Administrative and clerical workers: supply, communication, personnel, etc.	21
3. Electronic technicians: electronics maintenance, radio operations, aircraft control, etc.	13
4. Ground-combat personnel: infantry, artillery, tank crews, etc.	13
5. Service workers: food services, security, motor transport, etc.	12
6. Craftsmen: construction, naval crafts, metalworking, etc.	8
7. Other technical workers: medical intelligence, drafting, etc.	8
	100

SOURCE: Clark, Harold F. and Sloan, Harold S., Classrooms in the Military: Account of Education in Armed Forces of United States, Bureau of Publications. Teachers College, Columbia University, p. 104.

Table 5. Enrollment in Federally Aided Vocational Classes, by Type of Program, Selected Years

Fiscal Year	Total	Agri-culture	Distri-butive Occupations	Home Economics	Trades and Industry[1]	Practical Nursing	Technical Education
			Number (in thousands)				
1918	164.2	15.5	-	30.8	117.9	-	-
1948	2,836.1	640.8	292.9	1,139.8	762.6	-	-
1959	3,701.1	757.2	310.6	1,585.9	968.1	30.8	48.6
1960	3,768.1	796.2	303.8	1,588.1	938.5	40.2	101.3
1961	3,855.6	805.3	306.1	1,610.3	963.6	47.3	123.0
1962	4,072.7	822.7	321.1	1,725.7	1,005.4	49.0	148.9
1963	4,217.2	827.8	309.6	1,839.4	1,001.8	54.0	184.6
1964	4,566.4	860.6	334.1	2,022.1	1,069.3	59.0	221.2
			Percent Distribution				
1918	100.0	9.4	-	18.8	71.8	-	-
1948	100.0	22.6	10.3	40.2	26.9	-	-
1959	100.0	20.5	8.4	42.8	26.2	0.8	1.3
1960	100.0	21.1	8.1	42.1	24.9	1.1	2.7
1961	100.0	20.9	7.9	41.8	25.0	1.2	3.2
1962	100.0	20.2	7.9	42.4	24.7	1.2	3.7
1963	100.0	19.6	7.3	43.6	23.8	1.3	4.4
1964	100.0	18.8	7.3	44.3	23.4	1.3	4.8

---

[1] Includes enrollment in fishery occupations.

SOURCE: U. S. Department of Health, Education, and Welfare, Office of Education.

The time has come for vocational educators and those concerned with vocational guidance to take a closer look at economic and social changes now taking place. Manpower economists can bring the facts to their attention. The changes in training and guidance will only take place when educators and guidance specialists translate these facts into revised programs and curricula. Opponents of change should realize that those who will suffer most from our inability to change will be the youngsters we educate and train.

Mobility of the Labor Force

Persons concerned with education and training have been slow in recognizing the fact that many of the young people they educate and train will leave their home communities.[11] As an indication of the mobility of our population we should keep in mind that half of the over 3,000 counties in the United States lost population due to net out-migration between 1950 and 1960.

More recently, a study of the mobility of the population showed that between 1963 and 1964, about 11 percent of the 18 and 19 year olds had moved across a county line.[12] The migration rate for the 20 and 21 year olds was 15 percent and was up to 17 percent for those 22 to 24. The peak migration rate apparently occurs among persons in their early twenties--the age at which most young people leave their parental homes to find jobs, to get married and set up their own homes.

Many of the workers trained in vocational education institutions do not remain in their home towns after they receive their education. This becomes apparent when we see that between 1959 and 1964 about 600,000 male manual workers age 18-24 moved to noncontiguous states. (About half of these workers may have moved more than once.) Approximately one-fourth of these movers were craftsmen.

---

[11] Although the American Institutes for Research study, The Process and Product of T & I High School Level Vocational Education in the United States, implies there was very little mobility among the trades and industry graduates (ch. 12, p. 3), the evidence presented contradicts the implication. If the graduates for whom no address could be found were included among the movers (and many of them probably should have been included), then almost 50 percent of the graduates did, in fact, move.

[12] Mobility of the Population of the United States March 1963 to March 1964, Washington: U. S. Department of Commerce, Bureau of the Census (September 7, 1965), Current Population Reports, Series p-20, No. 141.

The mobility problem is further complicated because of the extremes in environmental conditions in which a young person may be born, raised, and trained and his ultimate destination as a worker. This is clearly apparent in the rural to urban population shift.

In May 1958, there were 25.8 million native born persons 18 years of age and over in the country who had been born on farms. About two-thirds of the farm-born population had migrated to nonfarm areas.[13] A recent survey of 16-21 year-old youths showed that 40 percent of the boys and 60 percent of the girls who had been farm residents their last year in school had moved to nonfarm areas.[14]

The reality of mobility of our youthful population and the significant differences in the kinds of jobs those raised on farms eventually get can no longer be overlooked by those charged with the responsibility of educating our youth. It appears that youngsters growing up in rural areas are being short-changed for life because of the training they get--or because of the lack of training.

Contributions of Recent Government Training Programs

The Manpower Development and Training Act was passed in 1962 when the principal concern of Congress was the high level of unemployment and the effects of technological change upon employment and job content.

From September 1962 through March 1, 1966 some 185,000 trainees have finished MDTA institutional training programs. The major occupations in which trainees were enrolled between September 1962 and January 1966 were:

Major Occupations	Number Trainees Enrolled
Stenographer-Secretary --------------------	22,164
Machine Operator, General -----------------	17,147
Typist and Clerk-Typist -------------------	16,559

---

[13] Characteristics of U. S. Population by Farm and Nonfarm Origin, Washington: U. S. Department of Agriculture, Economic Research Service (December 1964), Economic Report No. 66.

[14] Out-of-School Youth, February 1963--Part II, Washington: U. S. Department of Labor, Bureau of Labor Statistics (1965), Special Labor Force Report, No. 47.

(List Continued)

Major Occupations	Number Trainees Enrolled
Nurse Aide-Orderly-Ward Attendant ---------	16,511
Welder ------------------------------------	15,390
Automobile Mechanic -----------------------	15,381
Nurse, Licensed Practical -----------------	12,772
Automobile Body Repairman -----------------	8,177
Clerk, General Office ---------------------	5,708
Cook --------------------------------------	5,680

Although the MDTA and other government training programs designed to help workers with special employment problems are making some contributions to the manpower supply of the economy, limitations on the size of the programs prevent them from making major contributions. A large expansion in MDTA and other programs would be needed if these programs were to make a significant impact on the supply of manpower.

The redirection of the MDTA program to meet selected skill shortages as they develop should enable this program to be used as one of the anti-inflationary devices if manpower shortages become more of a problem in the months ahead.

Women: An Increasingly Important Source of Manpower Supply

We have not recognized that women have been the major source for increased manpower supply in the postwar period. The number of jobs held by women between 1947 and 1965 rose by 8.9 million and only 5.5 million for men. Almost two-thirds of the employment increase during this period occurred in jobs held by women.

In 1965, 50 percent of all American women between the ages 45-54 were in the labor force. This is a dramatic contrast with the situation at the start of the century. At that time, only about 15 percent of women in this central age group were in the labor force.

More than 3 out of every 4 employed women age 35 and over are working in four major occupational categories. These occupations are ranked according to the size from: clerical and kindred workers (30.2 percent); operatives and kindred workers (17.5 percent); service workers, except private household (15.5 percent); and professional, technical, and kindred workers (14.7 percent). (See Table 6.)

Table 6. Employed Women Age 35 and Over by Major Occupational Group, March 1965

Total: Number (in thousands)	15,309
Percent distribution	100.0
Major occupational group	
Professional, technical, and kindred workers	14.7
Farmers and farm managers	.2
Managers, officials, and proprietors, except farm	4.7
Clerical and kindred workers	30.2
Sales workers	8.1
Craftsmen, foremen, and kindred workers	1.3
Operatives and kindred workers	17.5
Private household workers	5.1
Service workers, except private household	15.5
Farm laborers and foremen	2.3
Laborers, except farm and mine	.5

SOURCE: U. S. Department of Labor, Bureau of Labor Statistics, data unpublished at present time.

What is the significance of the high proportion of women 35 and over in the labor force and their occupational distribution to counselors and educators?

First, a large number of the women will have three careers. The first career will take place after they leave school and enter the labor force. When they marry they will then leave the labor force to begin their second career as mothers and homemakers. The third career, typically, will take place after their children have reached school age and they return to the labor force. This pattern of work life must be understood by the educator and counselor in training young women and counseling them about their future careers.

The second significant fact about the employment of women is of direct interest to educators. How does the educational program now offered to women fit in with the fact that almost 1 out of every 3 working women age 35 and over today has a clerical or related job? Are today's training programs preparing women for the right kinds of employment opportunities?

It is now apparent that women represent a key element of supply in our working force. By March 1966, the 5.1 million women working in manufacturing industries made up over one-fourth of total manufacturing employment. More than 2 out of 5 employees in communications (telephone, radio and television broadcasting), and finance, insurance, and real estate are women.

Women workers account for 3 out or 5 of the employees in electronic component plants. About 4 out of 5 workers in the apparel industry are women.

Both educators and counselors must now take into account the inescapable fact that women workers can no longer be sloughed off into training for homemaking with the mistaken notion that they will spend most of their lives out of the labor force and in the home. The kind and quality of training given to young women deserves the same priority as that given to young men.

Conclusions and Recommendations

There appears to be a fairly effective matching of workers at the professional and technical level. The occupational commitment to "professional" jobs, the ease of entry into jobs for which less commitment exists, the occupational mobility, the ability of employers (e.g., school boards) to adjust standards to the available supply of manpower all point to a fair degree of success in developing this kind of manpower supply.

The number of workers being educated and trained at the professional level and the closer relationship between utilizers of labor (employers) and educators at this level than at other levels have resulted in better matching between workers and jobs. The greater flexibility of educators who educate and prepare professional workers also appears to contribute to the superior matching process.

Obstructions to supply, however, do exist at the professional level. For example, the medical profession has apparently not always responded to greater manpower needs. The new Medicare program will test the ability of this profession to respond to increased demands.

We have now reached a point in our history where we are finally realizing that we cannot continue to lose brain-power. Especially, if this loss occurs because of low income. We know that about two-thirds of all school dropouts come from families with incomes under $5,000 and only 10 percent come from families with earnings of $7,500 or more. In the past, we contributed to the circle of lost brain-power by permitting so many of our families to remain in the low-income brackets.

In order to expand our manpower supply and more fully utilize our manpower, consideration might be given to increasing the number of scholarships to enable more young persons from low-income families to get into the medical profession and enter other professional, technical or skilled occupations which generally require long periods of education and training.

We not only lose brain-power because of lack of income, we also lose brain-power because of our attitudes on race and sex. About 28 percent of the white and only 14 percent of the Negro population 20 and 21 years old were enrolled in school in the fall of 1964.[15] The problem of discrimination and its impact upon the quality of manpower supply is evident at an early age. In nonmetropolitan areas, about 55 percent of the white youngsters 5 years old were attending school; only 25 percent of the nonwhites in this age group were going to school.

We underutilize our women by not recognizing that they have the ability to perform almost any job a man can do. The utilization of women in the field of medicine in foreign countries strikingly points up that we are not making full use of the capabilities of our women.

---

[15] School Enrollment: October 1964 Washington: U. S. Department of Commerce, Bureau of the Census (February 8, 1966), Current Population Reports, Series P-20, No. 148.

We need a stronger national effort to attract back into the labor force trained women whose skills are in short supply. This situation calls for action especially in teaching and nursing. More flexibility in hours of work and better arrangements for the care of children of working mothers have been suggested as ways to permit more women to come back to the labor force.

We have never resolved the dilemma that we need an adequate supply of workers in certain technical occupational fields if we are to survive as a Nation; yet the extremes in demand and supply for workers in these occupations may explain why we cannot entice enough of our brain-power into these fields of work.

We might want to acknowledge that persons in certain key occupations should receive "hardship" pay or some other sort of compensation because they have pursued critically needed occupations which are subject to more-than-average periods of unemployment.

We have too casually accepted the fact that there is a tremendous lack of formal training for many of the jobs in our economy. The preparation of workers for craft jobs has been almost left to happenstance. We have tolerated shoddy workmanship and incompetency even though we possess the ability to train the best qualified labor force in the world.

We have too long used too many of our vocational schools in large metropolitan areas as dumping grounds for those who could not make out well in the traditional academic classes. Instead of asking what was wrong with the educational system and trying to adjust it to new situations, we have swept the problem under the rug through the vocational schools.

We have accepted separate and unequal school systems which have low and different standards and permit many of our workers to enter our labor force completely unequipped for today's increasingly complex world of work.

We have failed to acknowledge that an enormous proportion of our population grew up in rural areas and were going to migrate to urban areas for employment. We either gave our rural youngsters no occupational training or the wrong kind of occupational training.

We have tolerated moribund educational systems which have not kept up with the world of work. We have permitted them, in 1966, to train workers for the world of 1910.

The time has come for a complete re-evaluation of our training programs for all workers. The economy would benefit, the workers would benefit if we took a good hard and honest look at most of our training and educational programs--especially those below the professional level.

MANPOWER REQUIREMENTS BY INDUSTRY AND OCCUPATION

Sol Swerdloff, Chief
Division of Manpower and Occupational Outlook
Bureau of Labor Statistics, U.S. Department of Labor

INTRODUCTION

Projecting future manpower requirements is a difficult and hazardous task. They can be affected by a great variety of possible events: new scientific discoveries and inventions, national and international political developments, natural catastrophes, and the vagaries of consumer preferences. Even if these non-economic influences were all that had to be considered, the task would still be difficult, since our knowledge of past economic trends is incomplete and imperfect. Nevertheless, projections such as those which will be presented below, I believe, can be useful as a guide in developing information for use in vocational counseling, in planning programs, and dealing with other manpower and educational problems.

The specific projections of manpower requirements to 1975 by industry and occupation and for certain specified groups presented here were prepared by the Bureau of Labor Statistics at the request of the National Commission on Technology, Automation, and Economic Progress.[1] (See Tables 1 and 2 on the following pages.)

The assumptions and conditions under which these projections were made and the methodology used are described in the Technical Note at the end of this paper.

SUMMARY

Using the assumptions described in the technical note, it was estimated that total manpower requirements in the United States might rise from the slightly more than 70 million workers employed in 1964 to nearly 89 million in 1975--an increase of more than a fourth during the 11-year period. This is a considerably faster rate of growth than has been shown in recent years. For example, between 1960 and 1965 the average annual growth in employment was 1.1 million. The projected requirements would result in a growth of nearly 1.7 million annually between 1964-75.

---

[1] The complete report, America's Industrial and Occupational Manpower Requirements, 1964-75, will be published within the next few weeks.

Table 1. Major Occupational Groups of Workers, Actual 1964 Employment and Projected 1975 Requirements

(Number in thousands)

Occupational Group	1964 Employment		Projected 1975 Requirements		Percentage Change 1964-75
	Number	Percent	Number	Percent	
Total, All Occupational Groups	70,357	100.00	88,700	100.0	26
White-collar workers	31,125	44.2	42,800	48.3	38
Professional and technical	8,550	12.2	13,200	14.9	54
Managers, officials, and proprietors	7,452	10.6	9,200	10.4	23
Clerical workers	10,667	15.2	14,600	16.5	37
Sales workers	4,456	6.3	5,800	6.5	30
Blue-collar workers	25,534	36.3	29,900	33.7	17
Craftsmen and foremen	8,986	12.8	11,400	12.8	27
Operatives	12,924	18.4	14,800	16.7	15
Nonfarm laborers	3,624	5.2	3,700	4.2	*
Service workers	9,256	13.2	12,500	14.1	35
Farm workers	4,444	6.3	3,500	3.9	-21

* Less than 3 percent.

NOTE: Projections assume a 3 percent level of unemployment in 1975. Percents do not add to totals due to rounding.

Table 2. Employment of Nonagricultural Wage and Salary Workers, By Industry, 1964, and Projected Requirements, 1975*

(In thousands)

	Actual 1964 Employment	Projected 1975 Requirements	Percent Change
TOTAL	58,156	75,875	30
Mining	633	620	**
Contract Construction	3,056	4,190	37
Manufacturing	17,259	19,740	14
Durable Goods	9,813	11,500	17
Ordinance and Accessories	247	250	**
Lumber and Wood Products, Except Furniture	603	550	- 9
Furniture and Fixtures	406	510	26
Stone, Clay, and Glass Prod.	612	675	10
Primary Metal Industries	1,231	1,290	5
Fabricated Metal Products	1,187	1,460	23
Machinery	1,606	2,050	28
Electrical Equipment and Supplies	1,548	2,000	29
Transportation Equipment	1,605	1,730	8
Motor Vehicles and Equipment	755	800	6
Aircraft and Parts	604	575	- 5
Instruments and Related Products	369	510	38
Miscellaneous Manufacturing Industries	399	475	19
Nondurable Goods	7,446	8,240	11
Food and Kindred Products	1,746	1,665	- 5
Tobacco Manufacturers	89	80	-10
Textile-Mill Products	891	880	**
Apparel and Related Products	1,302	1,525	17
Paper and Allied Products	625	775	24
Printing, Publishing, and Allied Products	951	1,100	16
Chemicals and Allied Products	877	1,125	28
Petroleum Refining and Related Industries	183	160	-13
Rubber and Miscellaneous Plastic Products	434	580	34
Leather and Leather Products	348	350	**
Transportation and Pub. Utilities	3,947	4,425	12
Trade, Wholesale and Retail	12,132	16,150	33
Finance, Insurance, and Real Estate	2,964	3,725	26
Services and Miscellaneous	8,569	12,275	43
Total Government	9,595	14,750	54
Federal Government	2,348	2,525	8
State and Local Government	7,248	12,225	69

---

* Projections assume an unemployment rate of 3 percent in 1975.

** Less than 3 percent.

NOTE: Because of rounding, sums of individual items may not equal totals.

While it is possible to assume a variety of patterns of economic growth, depending on shifts in investment and consumer expenditure patterns and changes in emphasis in government programs, the type of economy projected in this report is one characterized by an extension of the basic patterns which developed in the postwar period. Farm employment is expected to decline by about 1 million; all other employment is expected to increase by over 19 million. For nonfarm "goods producing" industries--manufacturing, mining, and construction--a moderate increase in manpower requirements of about 17 percent is projected, a rate of increase somewhat faster than that which occurred in the 17-year period, 1947 to 1964. Requirements in the "service producing" sector as a whole--trade, finance, government, services, and transportation and public utilities--are expected to increase more rapidly by 38 percent, also somewhat faster than over the past 17-year period. Among these fast-growing service-producing industries, the only one expected to have only a small increase in requirements is transportation and public utilities; in this industry, a reversal of the downward trend of the past 17 years is expected.

The effect of these industry trends will be to continue recent changes in the industrial composition of the economy. Government and services will increase sharply as a percent of the total; construction and trade also will increase their share. On the other hand, the relative importance of manufacturing and transportation and public utilities will decline slightly, and the relative size of agriculture and mining will continue to decline sharply. Taking the broad "goods" and "services" sectors as a whole (and including agriculture, with its self-employed as well as its wage and salary workers, in the former), the goods sector will decline from about 41 percent of all jobs in 1964 to 36 percent in 1975; the service sector will increase its share of manpower requirements from 59 to 64 percent. (If self-employed persons in nonagricultural industries were added to the above comparison, the services sector would have a slightly larger share in both years.)

The occupational requirements of the economy will change substantially as a result of both the differential growth rates of industries and the technological developments affecting the occupational requirements of each industry. Concern has been expressed that the impact of technological and industrial change will drastically curtail employment opportunities for less-skilled workers. The major conclusion of this study, which takes into account the technological change in American industry that can be identified and makes a careful appraisal of its potential effect on employment, is that the overall demand for less-skilled workers will not decrease over this 11-year period, although it will decline somewhat as a percentage of the total. Needs for nonfarm laborers in 1975 will be roughly the same as in 1964, although they will decrease from 5.2 to 4.2 percent of total manpower requirements. More than 3 million additional service workers will be required, and their share of total jobs will rise from 13.2 to 14.1 percent. Nearly 2 million more operatives will be needed; their share will, however, decline from 18.4 to 16.7 percent. An overall decline of more than 900,000 in the employment of farm workers is expected, and the share of farm jobs in the total is expected to decline from 6.3 to 3.9 percent.

The greatest increase in requirements will be for professional and technical workers; more than 4 1/2 million additional personnel will be required, an increase of 54 percent. The white-collar group as a whole is expected to expand by nearly two-fifths, and to constitute 48 percent of all manpower requirements in 1975. The blue-collar occupations are expected to expand at less than half this rate and will constitute 34 percent of all requirements. A rapid expansion in requirements for service workers is anticipated--a 35-percent increase in employment, bringing this group to about 14 percent of the total.

These changes in occupational requirements have significant implications for certain groups in the labor force.

Nonwhite workers are disproportionately concentrated in less-skilled occupations that now have higher-than-average unemployment rates and that are not expected to grow as rapidly as the more-skilled occupations. If nonwhites do not gain access to white-collar and skilled jobs at a faster rate than they have in recent years, they will continue to have more serious unemployment problems than their white fellow-citizens.

Young workers, another group with high unemployment rates, are also concentrated in the slower growing less-skilled occupations. The supply of young workers will grow faster in the next decade than the labor force as a whole. If we are to avoid continued high unemployment rates for youths, industry may have to take such steps as lowering the minimum age at which they hire workers for certain occupations, using younger workers as aids or assistants to the relatively more scarce mature and experienced workers, or promoting them faster to more-skilled jobs.

Women workers, on the other hand, although they, too, are increasing faster than the labor force as a whole, are already concentrated in the more rapidly growing white-collar occupations. If no changes take place in their proportionate share of jobs in the various occupations, they will have no more serious employment problems than they now have. However, men are increasingly competing for some of the jobs women have traditionally held in such occupations as teaching, social work, and library work. If this continues, women workers may have to find additional employment outside the occupations in which they have traditionally predominated.

EMPLOYMENT TRENDS AND PROJECTIONS FOR MAJOR INDUSTRY DIVISIONS

Despite the indicated one-fourth increase in manpower requirements in the economy as a whole, manpower needs in agriculture are expected to decline between 1964 and 1975, even under conditions of generally full employment. Underlying the long-term decline in farm employment will be the continued rise in output per worker as a result of the increased use of machinery, fertilizers, feed additives, pesticides, and other technological advances. The continuing decrease in the number of farms--particularly the small, low-income-producing units--will also contribute to the decrease in the number of farmers. And further mechanization may prevent any significant rise in the number of hired farm workers, despite the continuing increase in large farms. As a result, between 1964 and 1975 agricultural employment may decline by as much as one-fifth--a major decline but nonetheless a slowing down of the rate of decline of the post-World War II period.

In contrast to the decline in agricultural manpower needs, the projections for 1975 show a rise in total manpower needs in the nonfarm economy of somewhat more than one-quarter from the 65.6 million workers employed in 1964. Most of the increased needs will be in wage and salary employment, which may rise at a somewhat more rapid rate than total nonfarm employment. The smaller number of other workers (self-employed and unpaid family workers) is also likely to increase over the 11-year period.

Employment trends projected for each major industry division are briefly discussed in the following sections.[2]

Mining. Manpower requirements in the mining industry division are expected to show little change over the 1964-75 period. Employment in mining fell by more than one-third between 1947 and 1964, from 955,000 to 633,000.

In bituminous coal mining, where the number of production workers has dropped sharply in recent decades, some further declines in manpower needs appear likely. But since minor employment increases may occur in quarrying and nonmetallic mining, employment for the industry division as a whole is not expected to change much between 1964 and 1975.

Contract Construction. Under the 3 percent unemployment assumption used in developing these projections, manpower requirements in contract construction are expected to increase by more than one-third between 1964 and 1975, rising at a faster rate than the average for all nonfarm industries. The expected rise in needs will be at a substantially faster rate than in recent years, when contract construction employment grew from 2.8 million in 1958 to 3.1 million in 1964, an increase of somewhat more than 11 percent.

Home and apartment house construction will be stimulated by the anticipated increases in population and new family formation, by higher personal income levels, and by continuing shifts of families from cities to suburbs. Large government expenditures for construction of schools, hospitals, and roads and for urban renewal programs can be anticipated. Construction of industrial plants and commercial establishments such as office buildings, stores, and banks is also likely to expand with the general growth of the economy.

Manufacturing. Manpower needs in manufacturing are expected to increase at a slower rate than those in nonagricultural industries as a whole. In 1964, manufacturing--the largest industry division--employed about 17.3 million workers and accounted for about 30 percent of all nonfarm wage and salary employment. In the years ahead, the significant rises anticipated in manufacturing output will bring about additional needs for manpower despite increases in output per man-hour. By 1975, manpower needs in manufacturing may increase by about one-seventh over the 1964 level, although the division's share of nonfarm employment may fall somewhat.

---

[2] These discussions are geared to the estimates of wage and salary employment derived by the Bureau of Labor Statistics from payroll reports and exclude self-employed and and unpaid family workers. The overall figures on farm and nonfarm employment cited above are derived from the monthly labor force surveys and include these workers. For a discussion of the differences in coverage and employment levels between these two series, see the technical appendix to any current issue of the BLS periodical, Employment and Earnings.

The projected increase in manpower requirements in manufacturing means that employment needs in this industry division would have to rise much more rapidly than they did either in the post-World War II period when employment grew around 11 percent, or in the past decade, when employment grew about 6 percent. However, if the assumed high general level of employment is not reached, the projected increase in manpower needs in manufacturing would be considerably less than the above figures, since employment in this industry varies widely with changes in general business conditions.

Within manufacturing, trends in requirements are expected to differ among individual industries. The much faster employment growth in durable than in nondurable goods industries, evident since the end of World War II, is expected to continue. Manpower needs in durable goods industries may increase more than 1 1/2 times as rapidly as those in nondurable goods between 1964 and 1975. Two durable goods industries which are expected to grow more rapidly than the group as a whole during this period are electrical equipment and supplies and instruments and related products. Large increases in requirements are also likely to occur in other durable goods industries--especially the machinery industry. In the ordnance industry (including missiles), the rapid employment growth of recent years is not expected to continue, and manpower needs should remain relatively unchanged in the years ahead, and perhaps even decline.

In the more slowly growing nondurable goods sector, the industries which are expected to expand their requirements most rapidly between 1964 and 1975 are those producing rubber and miscellaneous plastics products, paper, and chemicals, Nondurable goods industries in which manpower needs may grow considerably less than the average for the nondurable group as a whole, and which might even decline, are petroleum refining, tobacco, and textile-mill products.

Wholesale and Retail Trade. Manpower requirements in trade, which have grown rapidly in recent decades, will continue to increase substantially over the 1964-75 period. As population and consumer expenditures rise, wholesale and retail trade establishments will distribute an increasing volume of goods and require a growing number of employees. The rate of increase in employment needs will be slowed, however, by increased use of self-service techniques and by technological developments such as use of vending machines, computers for inventory control and billing, and mechanized equipment for materials movement, which will tend to raise output per man-hour.

Altogether manpower needs in wholesale and retail trade may increase by one-third between 1964 and 1975. The development of suburban shopping centers and restaurants and the trend toward keeping stores open during evening hours is creating a demand for large numbers of part-time workers, especially women, who are available from nearby residential areas. A substantial part of the increased employment in trade may thus be among part-time workers, who comprise nearly one-fourth of all employees in this industry division, and among women, who make up more than one-third of the employees in the division. Furthermore, despite the trends of the past few years, wholesale and retail trade may also provide many opportunities for self-employment.

Government. Manpower needs in government are expected to increase rapidly in the years ahead, continuing the rapid growth of the post-World War II period. As in recent years, nearly all of the growth in requirements will be in state and local government agencies. Overall, government manpower requirements in 1975 may be one-half higher than the 9.6 million workers employed in 1964. Manpower needs in State and local government may grow by more than two-thirds; little change is expected in Federal government manpower needs.

Finance, Insurance, and Real Estate. Employment in finance, insurance, and real estate is expanding steadily and is expected to continue to grow. However, manpower needs in this industry are likely to grow much more slowly than in the past, when employment increased from 1.8 million in 1947 to 2.9 million in 1964, a growth of more than two-thirds. Between 1964 and 1975 manpower requirements in finance, insurance, and real estate may rise by about one-fourth, considerably slower than past increases in this division.

In banking, which employed every fourth worker in the division in 1964, employment growth is expected to be especially rapid, in spite of greatly increased use of electronic data-processing equipment. Between

1964 and 1975, employment needs in banking may increase by more than two-fifths. Manpower needs are also likely to increase in both insurance and real estate, but at a much slower rate than in banking.

Because women currently comprise about half of the employment in finance, insurance, and real estate, the employment increase anticipated in this division has significant job implications for women.

Transportation and Public Utilities. As in recent decades, widely differing employment trends are expected in the individual transportation and public utility industries in the years ahead. Manpower requirements in railraod transportation, which fell by about one-half between 1947 and 1964, are expected to continue to decline but much more slowly than they did in the past. Employment needs in both air transportation and motor-freight transportation and storage, each of which has increased substantially over the past decade and a half, are expected to continue to grow, offsetting the declines in railroad employment. Little or no change in manpower requirements is projected for communications and electric, gas, and sanitary services. Taking into consideration these diverse trends and the full employment assumption basic to all these projections, little or no increase in manpower requirements in the transportation and public utility industry division as a whole is expected by 1975.

Services and Miscellaneous Industries. The service industries are expected to be one of the fastest growing during the coming decade, as they were in the postwar period. Service employment grew by more than two-thirds between 1947 and 1964, from 5.1 million to 8.6 million. With continued rises in per capita income, consumers are expected to spend a larger and larger share of their income on services of many kinds, continuing a long-term trend. By 1975, manpower requirements in the service industries are expected to rise by more than two-fifths over the 1964 level.

Within the services division, manpower requirements will continue to grow rapidly in medical and health services, one of the largest of the service sectors. Factors which will contribute to this increase include the expected large growth in population, especially the increased numbers of older people, and children; rising income levels; increased emphasis on public health and medical research; changing patterns of health care; and the construction of additional medical, dental, and public health facilities.

Manpower requirements in business services of all kinds are also expected to grow--as business firms rely increasingly on advertising services to sell their products; on accounting, auditing, bookkeeping, and computing services to handle their fiscal record-keeping; on contract firms to provide maintenance service; and on audit bureaus and collecting agencies to cope with the increasing use of consumer credit.

Requirements in educational services are expected to grow especially rapidly, as more young people attend schools at all levels, with the attendant increase in needs not only by public schools (included in government) but also by private educational institutions included in the service industry division. Manpower requirements in education are also expected to be affected sharply by expanded government programs to provide vocational and adult education and training and education for youth, the poverty stricken, and the unemployed.

PROJECTIONS OF OCCUPATIONAL MANPOWER REQUIREMENTS

Significant changes have taken place and can be expected to continue to take place in the occupational structure of the U. S. labor force. One of the important changes of the post-World War II period has been the much greater growth in the number of workers in white-collar and service occupations as compared with manual workers, and especially the very large increase in the number and proportion of professional and high-level managerial workers. Employment of white-collar workers rose by more than one-half (54 percent) between 1947 and 1964, rising from less than 20.2 million to more than 31.1 million. Employment of service workers also rose substantially, growing from 6.0 million to 9.3 million, an increase of 55 percent. At the same time, employment of blue-collar workers increased much less rapidly, increasing about 8 percent, from 23.6 million to 25.5 million. The number of farm workers actually declined, falling from 8.1 million in 1947 to 4.4 million in 1964, a drop of 45 percent.

There are many factors which influence the occupational structure of the workforce. One of these major factors is technological change. Each industry has its own occupational pattern, and this occupational pattern has been and will continue to be heavily affected by new products and processes, increases in the sizes of plants, type of business organization, and other technological developments. A very important factor in the changes in the occupational structure of the economy is different rates of employment growth among industries, resulting from such influences as shifts in the distribution of income and changing patterns of consumption. The effect of the industry requirements upon occupational needs was calculated through the use of the Bureau's occupation-industry matrix. Many other factors also affect the occupational structure, including growth in population and its changing age distribution; government policy--relating, for example, to the size of the defense and space programs, and to expenditures for research and development; institutional factors, such as union-management relationships and practices, as in the case of the railroad industry; and the relative supply of persons in different occupations and the substitution effect resulting from a shortage in one occupation and replacement by members of another, such as technicians for engineers.

Taking into account these diverse factors, the projections developed for this report indicate an increase of nearly two-fifths for white-collar jobs. Among white-collar occupations, the most rapid increase in requirements will be for professional and technical workers, which may grow twice as rapidly (54 percent) as the average for all workers. Requirements for clerical workers are also expected to increase rapidly, rising by nearly two-fifths, and sales workers, by nearly one-third. The demand for managers and officials is expected to rise somewhat more slowly, increasing less than one-fourth between 1964 and 1975.

Requirements for blue-collar workers are expected to rise by one-sixth between 1964 and 1975. Among the blue-collar workers, the most rapid increase in requirements will be for craftsmen, a rise of somewhat more than one-fourth, or about the average rate of increase for total employment as a whole. Requirements for operatives will increase more slowly, by about a seventh, and little change is expected in the demand for laborers. A more than one-fifth decline in requirements is anticipated for farmers and farm workers.

The occupational trends and projections for the broad occupational groups and for some detailed occupations are discussed below.

Professional, Technical, and Kindred Workers. Professional, technical, and kindred workers have been by far the fastest growing occupational group since World War II. In 1964, there were more than 8.5 million professional and technical workers employed in the United States, more than twice as many as were employed in 1947. On the basis of the assumptions used in this report, requirements for professional and technical workers would continue to grow rapidly between 1964 and 1975, although at a somewhat slower rate than in the past. By 1975, the number of these workers needed may increase by more than one-half, or about twice as fast as all occupation groups as a whole.

Personnel needs are expected to rise substantially in practically every professional field--including teaching, accounting, the health professions, social and welfare workers, the social sciences, the clergy, the law, and engineering and the natural sciences--but the rate of increase in employment needs is likely to differ among professions.

Teaching, the largest profession, is expected to grow moderately in the years ahead. This projection assumes the expected rise in the school-age population and a continuation of recent trends toward increasing school attendance rates. In college teaching, personnel needs will grow at a much faster rate than in elementary and secondary school teaching--although the number of positions involved will be smaller. In the 1963-64 school year, the total number of college and university faculty engaged in full-time teaching was about 200,000. Between the 1963-64 school year and 1975, this number may increase by more than three-fifths, to take care of the unprecedented numbers of young people expected to be seeking a college education.

The needs for elementary and secondary school teachers are expected to increase more slowly than for college and university teachers. By 1975, the needs for elementary and secondary school teachers in public schools may be slightly more than one-fourth higher than the 1.8 million employed in the school year 1963-64.

In engineering and the natural sciences, employment requirements are expected to increase substantially by 1975. Scientific and engineering employment has grown rapidly over the past several decades, and the demand is expected to continue to grow in the years ahead, although at a slower rate than in the recent past. In 1963, there were an estimated 1.3 million scientists and engineers employed in the United States--950,000 engineers and 350,00 scientists. By 1975, the number of scientists and engineers needed may be as much as 1 1/2 times as great as the number employed in 1963, with requirements for scientists growing faster than those for engineers. Increased requirements for scientists and engineers are anticipated for the Nation's health-related research, space programs, and technical assistance programs, as well as to meet the generally expanding needs of our rapidly growing and increasingly complex and technological economy. Requirements will be particularly high for scientists and engineers with advanced training to the doctorate level and beyond.

The rapid growth in technician occupations is another significant trend which is expected to continue. In 1964 the number of technicians (including draftsmen) working with engineers and scientists was about 880,000. It is anticipated that, by 1975, requirements for engineering and science technicians may increase by as much as two-thirds. Requirements for medical and dental technicians who work with physicians and dentists are also expected to increase considerably. The increasing emphasis on improved utilization of professional scientists, engineers, physicians, and dentists, and the need to relieve these workers of tasks which can be performed by less highly trained persons have been, and will continue to be, a factor in the increased requirements for technicians. The growth of these occupations will also result from the increasing complexity of modern technology, which has created a need for workers who have some basic scientific, mathematical, and medical knowledge and also specialized training in some aspect of technology.

Managers, Officials, and Proprietors (Except Farm). In 1964, managers, officials, and proprietors numbered about 7.5 million, an increase of more than one-quarter since 1947. The broad occupations which make up this group are expected to show diverse growth trends in the years ahead.

Opportunities for proprietors declined considerably during the post-war period. In the years ahead, this declining trend is expected to level off, and the number of proprietors may remain at roughly 1964 levels. The trend toward formation of larger businesses is expected to continue and restrict the growth in the total number of firms. The replacement of small grocery and general stores and hand launderies (often run as family businesses) by supermarkets and large chain stores may reduce the opportunities for proprietors in the next decade. Offsetting these trends somewhat will be the expansion of business opportunities for proprietors in small franchised owner-operated businesses in such fields as quick-service grocery stores, self-service laundries and drycleaning shops, hamburger and frozen custard drive-ins, dance studios, and slenderizing salons.

On the other hand, the need for managers and other salaried officials--such as buyers, department store heads, and purchasing agents--is likely to go on increasing fairly rapidly in business organizations and government. As a result of these diverse trends, the manager-proprietor group as a whole may increase by nearly one-fourth between 1964 and 1975--about the same rate of increase as for all occupations. This rate of increase is somewhat faster than that which took place during the past decade and a half.

Clerical Workers. Employment of clerical workers--such as typists, stenographers, secretaries, clerks, and cashiers--has grown considerably during the postwar period, rising from 6.9 million in 1947 to 10.7 million in 1964, an increase of more than one-half. Between 1964 and 1975, the number of clerical workers needed will grow by more than one-third, a rate of increase greater than that for employment as a whole, but roughly the same rate as during the post-World War II period. Many of the opportunities will continue to be for women and for part-time workers.

The continuing expansion of the industries employing many clerical workers will be a major factor in this growth in demand. Another factor is the trend toward transferring to clerical workers functions which were formerly performed by persons classified as "sales personnel." However, the evermounting volume of communication, recordkeeping, and other paper work will tend to be offset somewhat by the laborsaving effects of electronic computers and other new office equipment.

Sales Workers. By 1975, the number of sales workers needed may be about 30 percent higher than the 4.5 million employed in 1964. This represents a faster rate of growth than has occurred in recent years. Among the major factors that will contribute to the expected increase in the demand for sales workers are population growth and rising per capita income.

Much of the increased need for workers in this occupational group will be for women workers, who accounted for about 4 out of every 10 workers in this occupation in mid-1964. There will also be increased manpower requirements for part-time workers. The growth of overall retail sales employment needs will be somewhat offset by the effects of self-service techniques and other laborsaving innovations.

Craftsmen, Foremen, and Kindred Workers. The requirements for craftsmen, foremen, and kindred workers will continue to show the largest increase among blue-collar workers. The number of these skilled workers has grown relatively slowly during the past decade and a half, increasing from 8 million in 1947 to approximately 9 million in 1964. In the years ahead, however, if the assumed level of 3 percent unemployment is achieved, the rate of increase in demand for skilled workers is expected to accelerate. By 1975, the number of craftsmen, foremen, and kindred workers needed could be more than one-fourth greater than the number employed in 1964, a growth rate roughly the same as that projected for the labor force as a whole.

Increased needs for mechanics and repairmen, building-trades craftsmen, and foremen will probably account for the bulk of the growth in the skilled worker group. The continuously growing need for mechanics and repairmen to install and maintain the ever increasing amount of complex equipment used by industry, government agencies, and private households will be a major factor in the overall increase in requirements for all skilled workers. The rapidly growing need for foremen will result in part from the narrowing span of direct supervision associated with the increasing complexity of productive processes.

Another factor is the anticipated large volume of construction activity, which will be reflected in large increases in demand for some types of building-trades craftsmen. The building-trades craftsmen expected to experience the most rapid growth in requirements are excavating, grading, and road machinery operators, cement masons, structural-metal workers, sheet-metal workers, and plumbers and pipefitters.

Increases in demand are expected also among instrument makers. Needs for other skilled machine workers are likely to show slower growth because of the growing use of laborsaving techniques such as numerical control.

Operatives and Kindred Workers. Operatives and kindred workers are currently the Nation's largest occupational group; in 1964, there were nearly 13 million operatives employed in the United States. The needs for these semiskilled workers are expected to grow at a slower-than-average rate in the coming years. Employment of operatives fluctuated following the end of World War II, but in late 1950's, the number of operatives began to decline substantially. Since 1961, however, there have been significant increases in employment of these workers; in 1964, employment of operatives reached higher levels than ever before, reflecting the substantial increases in employment in manufacturing, in which large numbers of operatives are employed.

Manpower needs for operatives are expected to rise by about one-sixth over the 1964-75 period, a rate of increase much faster than that during the 1947-64 period, but somewhat slower than during the past 4 years. Overall, by 1975 the proportion these workers represent of all employed persons would be significantly less than the 18.4 percent they represented in 1964.

Increasing technological advance, including automation of production processes, will undoubtedly eliminate some operative jobs in the years ahead. Growth of the industries that employ operatives will tend to offset such elimination of jobs. Also, the introduction of automated machinery in factories and other business establishments has been and will probably continue to be gradual. The growing use of motor vehicles for transport will result in increasing employment of truck and bus drivers--one of the large groups of workers in the operative category.

Industrial Laborers. In the past decade and a half, industrial laborers have declined steadily as a percent of the working population. Even under the predicated generally full-employment conditions, the proportion laborers represent of the total employed labor force is expected to continue to decline. In absolute numbers, employment of these workers, which total 3.6 million in 1964, is expected to show little change over the 1964-75 period.

The replacement of unskilled laborers by machinery in excavating, ditch digging, and similar work will undoubtedly progress further. Power-driven equipment, such as forklift trucks, derricks, cranes, hoists, and conveyor belts, will take over more and more of the materials handling work in factories, freight terminals, and warehouses. And integrated systems of processing materials handling equipment, which represent a more advanced stage of automation, will be installed in an increased number of plants. Still, the projections indicate continuing employment needs for laborers during the next decade, with many openings anticipated each year because of the high turnover rates characteristic of workers in the more casual types of laboring jobs.

Service Workers. The service worker occupational group includes private household workers, protective service workers, and many other workers in such occupations as airline stewardess, hospital attendant, barber, beautician, cook, waiter, and janitor. Employment in this diverse occupational group as a whole increased by more than one-half during the 1947-64 period--a rate of increase exceeded only by professional and technical, and clerical workers. In 1964, there were about 9.3 million service workers employed in the United States.

During the next decade, the demand for this group of workers is expected to increase rapidly--at a rate considerably above the average for the entire work force. Between 1964 and 1975, the number of service workers needed may increase by more than one-third.

A relatively rapid rise in demand for protective service workers such as policemen and firemen is to be expected as the population increases in urban and suburban communities. A very substantial increase in demand for practical nurses and for attendants in hospitals and other institutions is also anticipated. Other categories of service workers for which requirements are expected to increase rapidly include waiters and waitresses, cooks, counter and fountain workers, and charwomen and cleaners. The chief reason for anticipating growth in these latter occupations is the expected expansion in the food service business and in hospitals and other types of public buildings and institutions.

Farm Occupations. Employment of farmers (including farm managers and foremen) and farm laborers will continue to decrease. In the past 17 years, farm workers dropped by more than two-fifths, from 8.1 million in 1947 to 4.4 million in 1964. Profound technological changes have raised output per man-hour significantly, and thus decreased requirements for farm workers. Between 1964 and 1975, the number of farmers needed is expected to continue to decline, but at a somewhat slower rate than in the past. By 1975, demand for farm workers may be nearly one-fifth below the 1964 employment figure.

REPLACEMENT NEEDS

Projections of net employment needs in individual occupations provide only a part of the total picture of future manpower training requirements. Of equal importance, and in some occupations of greater importance than growth in net requirements, is the demand for new workers created by replacement needs. In fact, the number of new workers who will be required to replace those who are promoted, retire, die, or leave the work force for other reasons between 1964 and 1975 may well exceed the net growth in manpower requirements projected for the economy as a whole during that period.

In some occupations, particularly those in which large proportions of women are employed, the number of people to be trained as replacements is far greater than the number needed for additional jobs. For example, it is estimated that about 8 percent of all elementary school teachers must be replaced each year, whereas the net growth in requirements in the occupation is expected to average only about 2 percent a year over the 1964-75 period. In some occupations, of course, many of the workers who leave the work force return at some future date.

Detailed information is available on one aspect of total replacement needs--deaths and retirements of male workers. In addition, studies of the working patterns of women make it possible to estimate annual net loss rates for female workers.

Retirement and death rates for workers in specific occupations differ widely, largely due to the sex and age composition of workers in the occupation. For example, the profession of engineering, staffed largely by men, has a much lower replacement rate than that of stenographers, in which young women predominate. Similarly, within the clerical group, mail carriers and stock clerks (mainly men) have lower replacement rates than typists and telephone operators (mainly women). And within the craftsmen group, locomotive engineers, whose average age is high, have a replacement rate that greatly exceeds that for electronics repairmen, who are a relatively young group. Differences in separation rates by occupation are also related to retirement practices--as in the medical profession, many of whose members continue to practice long after they reach the normal retirement age for workers in other occupations.

Transfers of workers among occupational groups without specific formal training also have a considerable impact on manpower training needs in most fields of work. In general, where more workers transfer into an occupation than out of it, overall gross manpower and training needs in that field tend to be lowered. Conversely, where more workers transfer out of an occupation than enter it, overall training needs in that field usually are raised.

TECHNICAL NOTE

The industry and occupational projections presented in this report result from the Bureau of Labor Statistics' continuing program of research in future occupational and industry manpower requirements and resources. The occupational outlook program of the Bureau, under which the projections were developed, stemmed originally from the report of the Advisory Committee on Education appointed by President Roosevelt, which in 1938 recommended that an occupational outlook service be set up in the Bureau of Labor Statistics to make studies and provide information for use of individuals choosing a career, and for the use of those responsible for planning education and training programs.

In its two and one-half decades of industry and occupational research, the Bureau of Labor Statistics has systematically accumulated and analyzed manpower information on such topics as employment trends for major industries and for most major occupations, and on the many factors affecting employment; employment effects of a great many long-term programs of Government agencies, including those for defense, highways, scientific research, space technology, medical care, and education; and changes in industry and occupational requirements as they have been affected by these factors and by changing technology. The projections presented in this report reflect and stem not only from this continuing program of occupational outlook research but also from the Bureau's program of research on productivity and technological developments. It should be noted that although projections for many of the occupations and industries covered in this report have been published by the Bureau of Labor Statistics--many of them fairly recently--the projections presented here reflect a comprehensive and up-to-date reevaluation of the Bureau's occupational-industry projections.

In order to fully understand these projections, it is necessary to examine the assumptions which underly them and the methodology through which they were produced. The following provide such an examination.

Assumptions

Perhaps the most significant determinants of any manpower projection are the basic assumptions describing the expected nature and composition of the economy in the target year, in this case, 1975. Thus, in using the manpower projections developed for this report, the underlying assumptions should always be borne in mind.

A major group of assumptions underlying the projections is that relating to the level of economic activity in 1975. The size and composition of the labor force--one determining factor--is assumed to change by 1975 as projected by the Bureau of Labor Statistics in the February 1965 Monthly Labor Review. These projections indicate that the total labor force in 1975 will be 94.1 million. Since the target year 1975 is assumed to be one of peacetime conditions, similar to those immediately prior to the Vietnam buildup, the assumption as to the size of the Armed Forces in 1975--2.7 million--represents no significant change from the number of persons in the military services in 1964. The net result of the utilization of these assumptions is that the civilian labor force is projected at 91.4 million in 1975.

Another major assumption in the group is that on the level of unemployment in 1975. At the explicit request of the National Commission on Technology, Automation, and Economic Progress, the basic set of assumptions developed for this report assume an unemployment rate of 3 percent in 1975.

Other major assumptions which underly the projections in this report are: (1) that there will be no war or other cataclysmic event which would substantially alter the rate and nature of economic growth; (2) that National Security expenditures in 1975 (excluding space) will not be significantly different from what they were in 1964 (in dollar terms); (3) that economic and social patterns and relationships in our society, including patterns of consumption, will continue to change at about the same rate as they have in the recent past; and (4) that the scientific and technological advances of recent years will continue and that research and development expenditures will continue to grow, although at a slower rate than during the decade of the 1950's and early 1960's. Other more specific assumptions underlying the demand for manpower are discussed as they apply specifically to the industry and occupational projections.

Methodology

In developing projections of manpower requirements used by the Bureau in its own occupational outlook program and expanded for this report, different methods of analysis were used for individual industries and occupations. Varying techniques are required not only because different factors affect individual industries and occupations, but because differences exist in the amount and quality of data available for analysis. The broad pattern of research, however, was generally the same in each of the detailed industry and occupational studies described below.

Methology of Industry Projections. In developing the industry projections, the factors affecting employment in each industry were analyzed, both separately and as part of an overall framework. In the separate industry analyses, one of the most significant factors affecting employment in each industry was the prospective level of demand for the products of the industry, and the consequent effect of changes in demand on employment. Other important factors which were considered were expected technological changes as they affected output per man-hour and changes in hours of work.

More specifically, in projecting the activity or production level of an individual industry, it was necessary to first establish the nature of the demand for the industry's products or services and the relationship of this demand to the growth of the whole economy. Obviously, an industry producing products directly for consumers will have a different type of demand function than an industry which is making raw materials to be used as a component for further manufacturing.

An example of the analysis undertaken for one industry may serve to clarify the procedure. In projecting the production for steel in the analysis of the primary metals industry, for example, consideration was given to the expected increase in population and the trend in per capita steel output. Total requirements for steel depend on the requirements projected of each of the principal steel-using industries, such as automobile, construction, electrical appliances, machinery, and containers industries; competition with steel by other materials such as aluminum and plastics; and the import-export balance for steel. In effect, it was necessary to project the output of both domestic and foreign users of American steel in order to estimate total steel requirements. Future industry steel production was then translated into overall manpower requirements by estimating changes in man-hours per unit of output for the industry and making assumptions as to changes in hours of work. In this industry, as in others, extensive use was made of preliminary data from the input-output tables prepared by the interagency economic growth project.

In addition to the detailed and comprehensive analysis of each industry, a more global type of analysis was used to check the individual industry projections and to provide an overall framework for the projections.

The general approach followed in the development of this framework began with the population and labor force projections developed by the Bureau of the Census and the Bureau of Labor Statistics, respectively. Assumptions were made as to the size of the Armed Forces, the level of unemployment, annual hours of work, and output per man-hour. Multiple regressions were run which took into account past employment trends and relationships, and variables such as unemployment, size of the Armed Forces, Gross National Product, and population. By means of this technique, preliminary projections of manpower requirements were developed for each industry for which adequate historical data were available.

The results of the multiple regression analysis were then examined in light of the detailed industry analyses previously described, and further judgment decisions made as to the level of each industry's manpower requirements in the projected period. Discussions with representatives of industry and unions also provided essential background in making these judgments, as did analyses of trends and projections for the economy as a whole or for individual industries made by other groups, such as the National Planning Association, Stanford Research Institute, State and local government agencies and universities. Other research currently being conducted in the Bureau of Labor Statistics by the interagency economic growth project and the Office of Productivity and Technological Developments also contributed to these final judgments.

The nature and significance of the projections included in this report reflect directly the method used. It is possible to posit a variety of patterns of economic growth for the United States, each consistent with an assumption of high levels of employment. The same total of employment might be attained, for example, by a variety of combinations of consumption expenditures, private investment, and government expenditures. For many purposes, it would be useful to explore the implications of alternative combinations for manpower requirements, and the Bureau of Labor Statistics is making such studies. The present projections reflect an economy in which the patterns of economic growth follow the broad trends of the postwar period and in which relationships between such basic variables as consumption, investment and Government expenditures are most like those which have obtained in years when levels of employment were high, with allowance for long-term trends in these relationships. More specifically, the projections reflect a gross national product of about $1 trillion in 1975 (in 1964 dollars), with a somewhat more rapid growth in gross private domestic investment than in personal consumption expenditures or Government expenditures.

Methology of Occupational Projections. The starting point in most of the studies of future occupational requirements was an analysis of the factors affecting the demand for workers in the occupation and an assessment of how these factors might operate in the future. Occupational employment is affected by a host of factors. Technological change is most often discussed as the factor affecting occupational employment, but occupational changes are influenced by other factors, such as growth in population and its changing age distribution, government policies, institutional factors, or by the relative supply of workers in other occupations. Also influencing occupational employment are changes in the total demand for the product produced by the industry employing the workers, changes in the levels of income and distribution of income among consumers, industry and government, and changing patterns of consumption.

It is apparent, in view of this multitude of factors, that no one technique can be used successfully to project manpower requirements in all occupations, or, for that matter, in all industries. The growth and decline of each occupation is affected by its own complex of factors. The number of teachers required, for example, is affected by the number of pupils to be taught (which in turn is related to birth rates and trends in the proportion of children at each age who attend school) and by trends in the ratio of teachers to pupils, which depend upon educational practices and available financing.

Projections of requirements for engineers, as another example, require consideration of entirely different factors, such as the growing utilization of technical personnel, the increasing technological complexity of industrial products and processes, changes in the level and composition of expenditures for defense, and growing research and development activities. Requirements for automobile mechanics were related to the projected number of new automobiles and accessories and the age of existing automobiles; requirements for radio and TV repairmen, to the number of radios and TV's sold, and their age and complexity. Thus, the occupational projections which are presented in this report were based on an analysis of the specific factors most closely related to the demand for that occupation. However, they also took into account the overall framework of future industry manpower requirements.

Projections of occupational requirements were also developed through the use of the occupational-industry matrix program currently being developed in the Bureau. In the matrix program, occupational patterns for detailed industries were developed for a current year, projected to 1975, and then applied against the overall industry projection framework. The preliminary occupational projections resulting from the application of occupational patterns to industry totals were then analyzed and compared with the occupational projections developed independently. In general, the final projections presented in this report are based on judgment as to the affect of demand factors on specific occupations.

It should be noted that the projections in this report were developed without taking into account explicitly limitations in the future supply of personnel. Thus, they represent the Nation's requirements for workers in 1975 under the stated assumptions; they are not predictions of what employment actually will be in that year. Obviously, these industry and occupational requirements can be fulfilled only if an adequate supply of workers with the needed skills becomes available.

Another point for readers to bear in mind is that the projections of requirements in 1975 are meant to apply only to the overall long-run period beginning in 1964 and ending in 1975. The reader is cautioned against interpolation between the 1964 and 1975 figures to derive estimates for any other year. Similarly, the use of the target year 1975 is not meant to imply that the projections of requirements will be realized in that year and that year only, and regardless of the cyclical conditions which prevail at that time. The projections are thus meant to apply to a year in the mid-1970's when the stated assumptions correctly describe the state of the economy.

DIFFERENTIALS IN SPATIAL MOBILITY

Everett S. Lee* and
G. Putnam Barber**
University of Massachusetts

The volume of internal mobility within the United States is nothing less than astounding. One in five Americans changes his place of residence each year, one in fourteen moves from one county to another, and one in thirty migrates from one state to another. Rates of this order imply that the "average" American will live in fourteen houses, five counties, and three states during the course of his lifetime.

Such rates of migration are found nowhere else in the world. In part this is true because ours has traditionally been a migrant culture. Even the proud descendants of Massachusetts' Pilgrims, Pennsylvania's indentured servants, and Georgia's convicts are but a few generations removed from immigrant ancestors, and we have retained that willingness to strike out for new surroundings whenever disaster threatens, opportunity beckons, or fancy dictates. More than tradition is involved here, however. Ours is the most industrialized of countries and no other can match us in overall speed of development. Quick exploitation of newly discovered resources and ruthless abandonment of unprofitable enterprises are characteristic of American enterprise. And, while no other country matches us in any of these respects, other nations with high per capita income, such as Canada, Sweden, Australia, and West Germany also have rapidly shifting populations. Increasingly the situation is similar in Japan, the Soviet Union, and the developing countries of Southern and Eastern Europe.

Obviously there are important advantages to be gained from high mobility but there are costs as well. Some of these are illustrated in the report of the Superintendent of the Census which accompanied our first tabulations of internal migrants in 1850:

> Another interesting branch of this inquiry is that which concerns the inter-migration of our native citizens among the States. The tables presenting a view of this movement will be most useful and valuable in tracing the progress of different portions of the country. The facts developed will show how far one section has impressed its own

---

* Head, Department of Sociology.

** Instructor, Department of Sociology.

> characteristics on others... The roving tendency of our people is incident to the peculiar condition of their country, and each succeeding Census will prove that it is diminishing. When the fertile plains of the West shall have been filled up, and men of scanty means cannot by a mere change of location acquire a homestead, the inhabitants of each State will become comparatively stationary, and our countrymen will exhibit that attachment to the homes of their childhood, the want of which is sometimes cited as an unfavorable trait in our national character.[1]

Free land vanished with the frontier but the predicted attachment to the homes of childhood is no more evident now than it was a century ago. In fact, there is no reason to believe that migration will diminish in the future, and partly because of our dedication to education. Just as a diversity of areas within a country spurs migration so does a diversity of people. A diversity of people inevitably means that the status of some will be elevated above that of others. Discrimination among racial or ethnic groups is the rule rather than the exception, and the degree of discrimination varies from place to place and from time to time. True, discrimination may create ghettos and act as a barrier to migration but it may also set off great movements of people from one area to another - witness the recent migration of the American Negro. Ethnic differences, however, tend to disappear with time, but a major goal of American society is to create other kinds of differences. The aim of prolonged education is to create specialists, for many of whom the demand is small in any one place but widespread. For them migration is a concomitant of their vocations; thus college professors and engineers have become peripatetic, but so have business executives and airplane mechanics.

Though the volume of migration is enormous --about 40,000,000 moves per year, of which fourteen million cross county lines and six million cross state lines -- much of its importance lies in the selection of migrants. Migrants are not randomly selected from the general population. Instead they differ greatly from the populations at both origin and destination, and migrants in different streams differ from each other. Both the direction and the distance of movement are important in determining the characteristics of migrants. We shall therefore consider the general effect of these factors before considering the individual differentials. Finally we shall try to relate internal migration in terms of both volume and selection to problems of education.

---

[1] Report of the Superintendent of the Census (December 1, 1852), p. 15.

The Direction of Migration

Three types of movement have been most characteristic of American migration: the movement from South to North, the movement from East to West, and the movement from the center of the country to the peripheries - to the Atlantic, Pacific, and Gulf Coasts, and to the Great Lakes area. To these we may add a fourth, which crosses over with the other three, the long term movement from rural areas into the cities.

All of these movements still continue, but the movement from South to North, at first a movement of whites, has become largely a Negro migration and one which has profound implications. From a nation of farmers with a few small cities that looked out toward Europe we have become a highly urbanized people -- so much so that before long half our people will live in giant metropolitan areas. Only six percent of our people remain on farms and from the purely economic point of view even this is too many. Half our counties lost population between 1940 and 1950 and the proportion was about the same for the 1950-1960 decade. There are roughly a hundred counties in which migration has so reduced the numbers of the able bodied that deaths exceed births and more counties are added to this list yearly. Thus rapid growth in the cities has as its counterpart the desertion of the countryside and coastal regions flourish while central areas become relatively if not absolutely emptier.

Since our identification with the state of birth is so strong, it may be useful to consider the redistribution of population in those terms. One in four Americans lives outside the state in which he was born. This, however, is an average figure for all ages. By age the proportion rises from zero at birth to about thirty-five percent at age forty, after which it changes little. A somewhat different pattern obtains for Negroes. At the youngest ages the proportion living outside the state of birth is less than among the whites, but by age 25, the percentage is higher for Negroes. At its peak, also about age forty, nearly half our Negro population lives outside the state of birth, but the proportion declines in the upper ages. This, however, is a passing phenomenon which reflects a cohort effect. As we shall see later, migration propensities are greatest in young adulthood;

and for our older Negroes this stage of the life cycle was passed before the Negro population became very mobile. Not until World War I did the Negro population do much moving from the state of birth, and few were found outside the South.

The patterns of migration are, of course, much different from state to state. Some states are able to hold the great majority of the in-state born while attracting persons born in other states, and others lose a high proportion of the indigenous population with little gain from other states. Some gain Negroes but lose whites, and there are even those that lose the bulk of the in-state born while attracting more than equal replacements from elsewhere.

California stands out as the prime magnet for migrants and suffers proportionately less than any other state from losses of the native population. As of 1960, eight million Californians were born in other states and another million were born abroad. Thus, three out of five Californians were born outside the state, but of the seven million born in California fewer than eight hundred thousand were living in other states.

Mississippi exhibits nearly the opposite pattern, losing many and attracting few. More than a third of the whites born in Mississippi have gone elsewhere and so have four out of every nine of the in-state born Negroes. So severe is the current out-migration of Negroes that by age thirty no fewer than two-thirds of those born in Mississippi are gone, many of them to Chicago and Los Angeles. On the other hand, less than five percent of the Negro population living in Mississippi was born in other states, and nearly all of these are from the South.

The most bizarre pattern, however, is that of Nevada. Before age 15 half the population born in that state has migrated elsewhere but their places are more than filled by migrants from other states. While Nevadans desert their state to take up residence in California, Easterners come in to replenish the population. Thus Nevada's population is constantly changing and in 1960 seven out of ten of the native population were born in other states.

For every migration stream there is a counterstream which carries persons in the opposite direction. In some instances stream and counterstream are well balanced and there is little consequent redistribution of population, but in others a considerable redistribution is effected though the streams are relatively small. The movement of whites from South to North is just about as in the counter movement, but the southward movement of Negroes is very small in relation to the northward movement. The Mason-Dixon Line has been likened to a sort of osmotic membrane which permits the free passage of Negro migrants in the northward direction while blocking the opposite flow.

Distance of Migration

The United States is so large that migration can occur over great distances without the crossing of the national boundaries or, for that matter, without the crossing of a state boundary. Few European countries are as large as the state of Texas, and we have counties which are larger than many of the world's nations. A move from the east to the west coast covers a distance greater than that from Paris to Moscow or from Stockholm to Rome. Though hundreds of thousands of such moves do occur they are relatively rare since distance is an important limiting factor in migration. A surprisingly high proportion of all moves cover only short distances, a few miles or a few blocks.

But as the distance of migration increases the characteristics of migrants change. If we exclude the short distance movement which is associated with suburbanization, we can say with some confidence that long-distance migrants tend to be much more successful than short-distance migrants. The share croppers of a few decades ago usually made very short moves from one farm to another, and today's slum dwellers characteristically move around within a narrowly circumscribed area. On the other hand, long-distance migrants tend to be well educated and at or near the top of the socio-economic scale.

This does not mean, however, that the least successful will always be found near their birthplaces. Persons who move once seem much more likely to move again than previously immobile persons are to make the first move. And, since migration often occurs in stages with one short move following another in the same general direction, the effect of long-distance migration can be obtained. Thus, many of the residents of California were born in the East, first moved to the Midwest, and then moved successively closer to the West Coast. Large numbers of northern Negroes were born on Southern farms and arrived in New York or Philadelphia after having spent some time in a succession of Southern cities.

Age and Sex Differentials

Age and sex differentials are fundamental in the determination of other differentials and are of crucial importance in the educational and economic aspects of migration. Indeed, age selection in migration is so sharp that we cannot be sure of any other differential unless the age variable is controlled. Several charts on age selection in migration are presented at the end of this paper.

In Chart I, rates of migration by single years of age are presented for the total population. This curve is most remarkable. It has not been smoothed in any way, yet such regularity is almost never found in demographic statistics. With but one exception the rate falls from age 3 to age 14, then rises sharply and invariantly to age 18. From 18 to 21 the rates remain about the same, but for each succeeding age through 52 there is none for which the rate is not less than that for the preceeding age. Even so, the discontinuity before age 62 is extremely minor, and the small rise in rate after that age is probably associated with retirement, institutionalization, moving in with relatives, or obtaining smaller quarters.

Though the age curve has several changes of slope and there are irregularities, a series of equations can be written which predict the rate at most ages within a fraction of a percentage point. The relationship between age and migration, though more complex, is almost as close as that between age and mortality and we can make migration tables in the same fashion that we make life tables.

It is easy to see why the pattern of rates by age should assume this form. The high rates for the youngest children reflect the high mobility of their parents who are in the twenties or early thirties. At these ages family size is still increasing and moves are necessary in order to obtain greater space. As the children grow older, however, family size stabilizes and the reluctance to transfer children from one school to another grows. Entrance into the labor force, Armed Forces, or educational institutions causes the sharp increase after age 14, and marriage also plays a part. After age 30 career patterns are established and the rate falls as the adjustment between aspiration and accomplishment is made.

In Chart 2 rates for males are contrasted with those for females. On the whole the curves are quite similar, almost indistinguishable at the earlier ages. The curve for females is remarkably smooth and the relative roughness of the male curve between the ages of 20 and 27 is probably associated with entrance and departure from military service and with higher education. The peak rates for males are somewhat higher than those for females, and male rates are higher than those for females from young adulthood through middle age.

The general similarity in male and female rates of migration is to be expected in this country because much of the total migration is family migration and therefore not sex selective. It is true, however, that the effect of distance is different for the sexes. As distance increases the proportion of males in the migration stream increases, and among unmarried persons the selection for males is very strong indeed. The selection for young adults is also intensified as distance increases. Old people and families with large numbers of young children tend to migrate short distances while young adults move about freely in search of economic opportunity.

Some of these effects of distance are shown in Charts 3, 4, and 5 where both male and female rates are shown. The curve for females is invariably quite smooth and, except for migrants between noncontiguous states, the peak for females is higher than that for males. Again, rates for males and females are approximately the same at the youngest ages, while at ages over 30 rates for females are below those of males in most instances. It is likely that the high rate of migration between noncontiguous states for males and the bimodal character of the male curve between the ages of 18 and 25 is associated with military service. Indeed, Ann Miller has shown that about half of male interstate migrants are moving at those ages because of military obligations.[2]

Charts 6 and 7 highlight the differences between male and female patterns of migration by age and distance. In these charts the age specific rates are shown as relatives of the crude rates for males or females, all ages taken together. The effect of distance is clearly very important for males with peak relative rates much higher for long-distance than for short-distance migrants. Among females, however, the effect of distance is not marked, and the relative rate curves for intrastate migrants, migrants between contiguous states, and migrants between noncontiguous states look very much the same.

---

[2] Communication to the Author, April 10, 1966.

In Chart 8, ratios of male to female rates of migration are plotted for three distance categories. By distance, the patterns are very different. Among intrastate migrants, there is a pronounced excess of female migrants between the ages of 16 and 25. For migrants between contiguous states, male and female rates for these ages are not so strikingly different, but for migrants between noncontiguous states, male rates are extraordinarily high as compared with female rates from about age 18 for a considerable span. Among intrastate migrants, male rates are never more than 20% higher or lower than female rates and except at the very oldest ages this is also true for migrants between noncontiguous states, but at its peak the rate for males is almost twice as high as that for females and for ages 17 through 21 male rates are very much in excess of female rates.

Despite the differences in the male and female rates and despite the differences in patterns by distance of migration, it is nevertheless possible to fit the observed rates very closely with polynomials of low degree. A glance at Chart 1, or any of the charts for males and females, makes it clear that no simple expression can be derived for the entire age curve. Even a cursory examination, however, indicates that the curve can be broken into three segments which can be approximated by second and third degree polynomials. We have, therefore, fitted a section of the curve from ages 3 through 13 and 18 through 83 with second degree polynomials. Additional second degree expressions were derived for ages 23 through 57, and a cubic was computed for the overlapping segment from ages 10 through 21. The derived expressions are shown in Table A and actual versus predicted rates are shown in the series of Charts A-1 through A-15 along with R^2's which are accepted as simple tests of goodness of fit. In this series of charts, age is plotted as of estimated time of migration. The equations are given in Table A, and Table A and Charts A-1 through A-15 are presented at the end of this paper.

In Chart A-1, actual and predicted rates are shown for ages 3 through 14 by sex and distance. The fit attained is obviously very good with R^2's of .97 to .99 regardless of sex or distance. In no instance does the predicted rate per thousand population differ from the actual rate by more than one or two points in the last digit.

The next section of the curve gives us more difficulty. (See Charts A-2 and A-3.) We have somewhat arbitrarily chosen to fit this section with a cubic beginning with age 10 and extending through age 21, thereby obtaining hooks at either end of the segment which are intended to recapture the turning points of the overall curve. The fit is by no means as good for younger ages with R^2's ranging from .87 to .96. The fit is better for females than for males, largely because of the lesser influence of military service and higher education upon female rates of migration.

For ages 23 through 57, the regularity of rates is very impressive. (See Charts A-4 through A-9.) The values for R^2 are never less than .97 and are most often on the order of .99. The slight differences between expected and observed rates are generally greatest at the younger ages and there is little difference in goodness of fit for males and females. Charts A-10 through A-15 cover the age range from 18 through 83. The fit is, of course, not as good as for ages 18 through 57, since there is not only some discrepancy at the younger ages but also the predicted values differ rather considerably from the actual rates at the retirement ages. Differences at these ages are greatest for males, espcially for migrants between noncontiguous states.

Since the patterns of rates for children and for adults are both described by parabolas and since children migrate for the most part with their parents we should be able to predict the migration of children from the rates for adults a "generation" older. Indeed, the predicted values derived from the quations for ages 23 through 57 are very close to those which are obtained if we add 25 or 26 years to those for the children taking both sexes together. Regardless of distance of migration, the R^2's between these two sets of values is never less than .97. We may, therefore, predict the migration of children from the rates for adults.

The most troublesome part of the entire curve is, of course, that segment which marks the sharp transition from childhood to adulthood. As the age of children increases, the rates fall off because of the declining rates of migration of their parents. At about age 16, however, dependence upon the parents is lessened and around ages 17 and 18 with graduation from high school and marriage or entrance into the military service, the migration of young people is no longer so highly dependent upon migration of adults. Nevertheless, some adolescents and young adults continue to live with their parents for several years more. Rates of migration for persons between the ages of 16 and 22 or 23 may therefore be thought of as weighted averages between the rates which would be predicted by a continuation of the curve for children and those which would be obtained by a projection into the younger ages of that for adults. If it proves possible to arrive at a fairly simple system of such weights, then the entire migration pattern can be obtained from rates for adults only.

Race Differentials

The great redistribution of the Negro population that has taken place since World War I gives the impression that rates of migration are very high among Negroes. Less than a half century ago the number of Negroes outside the South was almost negligible but today about half are found in the North and West. In New York City alone there are more than a million Negroes, more than in any Southern state, with the exception of North Carolina and Georgia. On Manhattan alone, and indeed packed within six or seven square miles of that island, are more Negroes than are found within several of the Southern States. Almost completely rural forty years ago the Negro, is now more urban than the white and the concentration of Negro population within a few great cities has seldom been equalled by other ethnic groups.

Nevertheless, rates of migration for Negroes are low, on the average about sixty percent of the rates for whites. The reason for the enormous shift in population lies in the efficiency of Negro migration. The streams to the North and West are much greater than the counterstreams to the South, and once in the large cities there is little movement into the suburbs or even into smaller cities.

The consequent problems are enormous as city officials in Philadelphia, New York, Chicago, and Los Angeles will attest. In a sense the nation's greatest problem people have been concentrated within small areas of our largest cities and these local governments are left to struggle largely unaided with what in reality are national problems. Discouraging as this may be, there is also a bright side to the picture. Since they are concentrated, Negroes are in places where crash efforts to educate them and raise their standard of living can be efficiently mounted. Furthermore, we should recall that only in cities are human resources rapidly developed. It remains just as true as it was in the Middle Ages that Stadtluft macht frei.

Educational Differentials

Differentials by educational status are also marked. In general, the greater the degree of education, the higher the probability of migration, but the curve is nevertheless somewhat U-shaped. Persons with little education are more likely to migrate than are persons with some high school training, but with increasing education migration rates soar. The mobility of college professors, presumably the most educated class in our society, is notorious, and business executives are also continually on the move. To enter the learned professions, except for those which require state licenses, is to reconcile one's self to a life of wandering.

While it is true that the relatively uneducated are quite migratory, it is also true that their migrations are usually of short distance as compared with the transcontinental jumps of the college graduate. It is probably true that the horizons of the uneducated are narrow and that they move more because they have to than because they want to. For the educated, however, migration occurs because a better situation beckons, and they simply leave a good past to take up a better one.

Intelligence Differentials

Do differences in education between migrants and nonmigrants also imply differences in intelligence? Are losing areas being stripped of their most intelligent young people and do the cities profit greatly thereby? The answer is not immediately apparent to these questions but a Swedish study recently published is highly provocative. Ejmar Neymank in his Selektiv Rorlighet[3] examines the intelligence test scores of a ten percent sample of Swedish conscripts in 1948. These tests were taken by the entire cohort of 20-year-old Swedish males who were classified by place where they completed elementary education (about 1942), by residence in 1948 at the time of conscription and later in 1956.

For persons living in rural areas in 1942 the test scores were not as high as for those living in certain areas, a nearly universal finding and perhaps attributable to environmental differences. The rate of migration from rural areas, however, was strikingly different for the various intelligence levels. The higher the test score, the more likely the out-migration, and nearly all the most intelligent left the rural areas. Futhermore, the intelligence test scores were higher for those going to large cities or for those moving great distances than for those going to smaller cities or migrating shorter distances. Furthermore, migrants from small towns to the countryside had lower scores than either the migrants to larger towns and cities or the nonmigrants who remained within the small towns. We do not need to postulate a genetic effect to emphasize the qualitative effect upon rural areas and upon the large cities.

---

[3] Ejmar Neymark. Selektiv Rorlighet, Stockholm: Broderna Lagerstrom (1961).

Occupational Differentials

For obvious reasons the pattern of migration rates by occupation resembles that obtained for education. Persons at the lower end of the socioeconomic scale are more migratory than their somewhat better placed countrymen but are much less likely to migrate than professional, technical, and managerial workers. Again the curve is U-shaped, reflecting the nationwide labor market for the top occupations and the limited perception of opportunity by the unskilled.

Again, rates of migration differ sharply by distance for the different occupations. The unskilled ordinarily migrate short distances, while the highly skilled move readily from coast to coast. Some occupations are characterized by low migration rates because of licensing practices while for others migration is a requirement for advancement. Again, migration is most characteristic of the highly successful and least characteristic of the semiskilled.

One way of adjusting to unemployment is to migrate but until recently we did not know how successful that effort might be. A recent labor force survey, however, compares the migration rates of migrants and nonmigrants, both of whom were unemployed at the beginning of the one-year period of the survey. At the end of the year migrants had lower rates of unemployment than nonmigrants.

Conclusion

We may now draw several conclusions which have important policy implications. In the first place, though the rate of migration is high in the United States, it is probably not high enough. In a dynamic economy new opportunities constantly arise in far distant places and old enterprises are ruthlessly abandoned when they are no longer profitable. Only high rates of migration can effect the necessarily close correspondence between opportunity and local labor supply so if we demand such an economy we must be prepared to migrate.

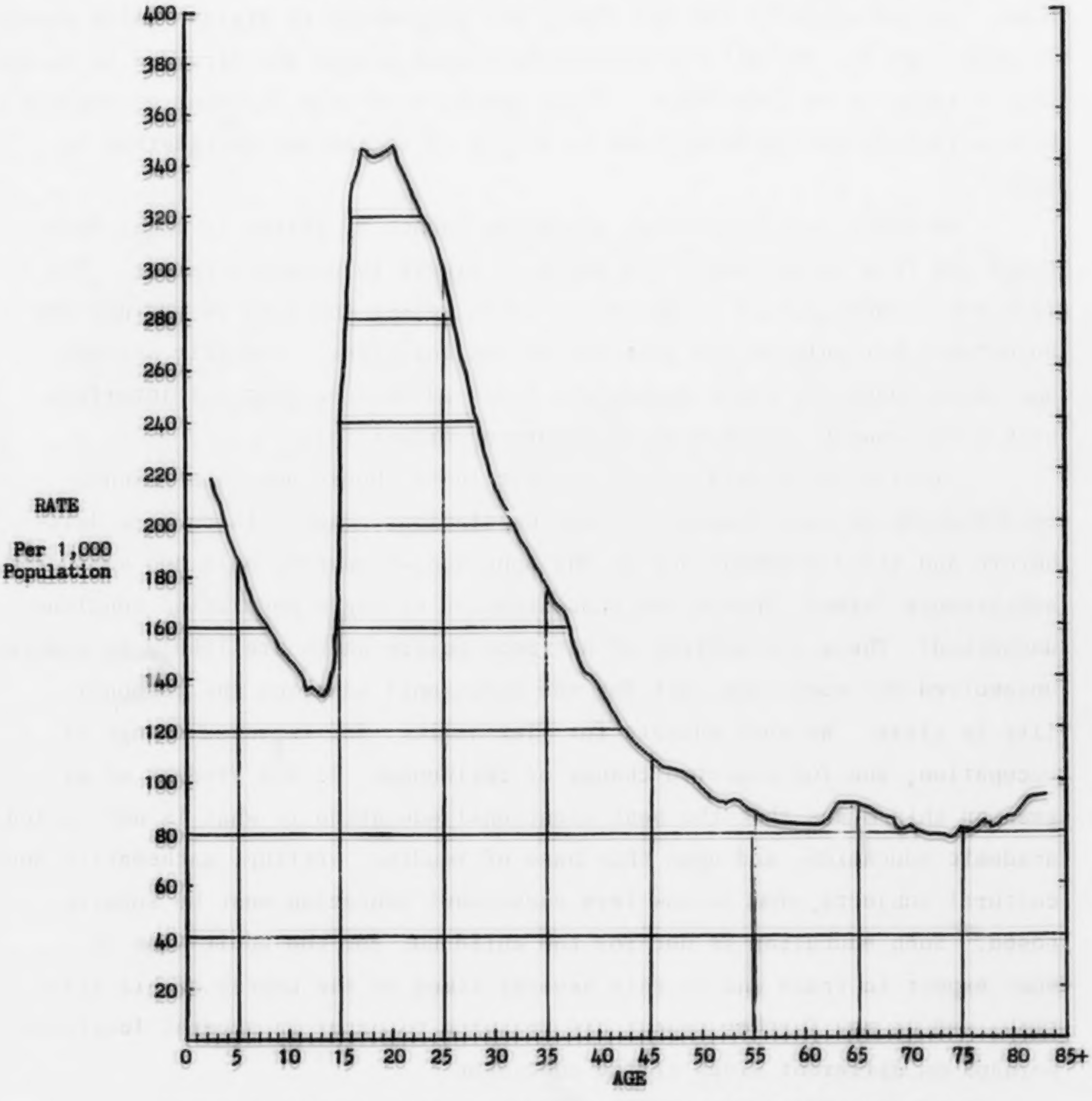
This the young are prepared to do, but for the middle aged the decline of employment in a particular location presents a difficult problem. As indicated by the age charts the propensity to migrate falls sharply after age 25, and all too often middle-aged people are stranded in decaying villages or on tiny farms. These people need help in order to migrate before they reconcile themselves to a life of relief and resignation to fate.

Secondly, our vocational education cannot be geared to local situations for this is not where the youth is likely to pursue a career. The farm boy is most likely to become an urban worker and must be trained for adjustment not only to new jobs but to new locations. Romantic notions and value judgments which exaggerate local advantages must not interfere with a nationwide prospective of future opportunities.

Finally, we should wonder whether there should not be a planned resettlement of some elements of our population. Should there be a deliberate and aided movement out of the Appalachian poverty belt and away from subsistence farms? Should the concentration of Negro population continue unchecked? These are matters of national policy which are likely to remain unresolved for some time, but for the vocational educator the responsibility is clear. We must educate for flexibility, for expected change of occupation, and for expected change of residence. To the student of migration this means that the best vocational education is what is now called academic education; and upon this base of reading, writing, mathematics and cultural subjects, what we now term vocational education must be superimposed. Such education is not for the child but for the adult whom we must expect to train and retrain several times in the course of his lifetime, and we may further expect his training to occur in several locations, perhaps on different sides of the continent.

CHART 1

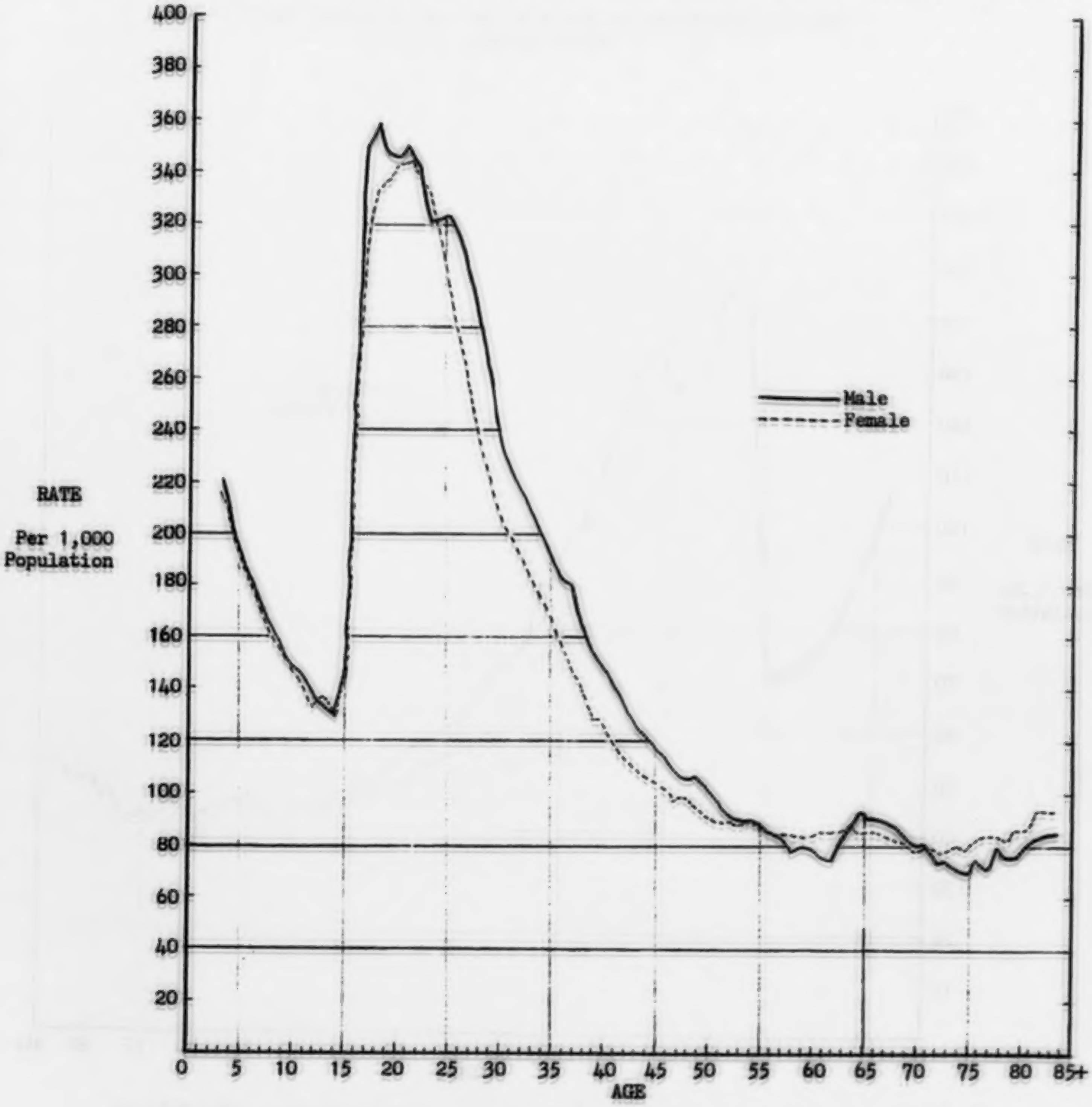
RATE OF MIGRATION BY SINGLE YEARS OF AGE: UNITED STATES, 1955-1960



Source: U. S. Bureau of the Census, U. S. Census of Population: 1960 Subject Reports. Mobility for States and State Economic Areas, Final P. C. (2) - 2B. Washington: U. S. Government Printing Office, (1963), Table 3.

CHART 2

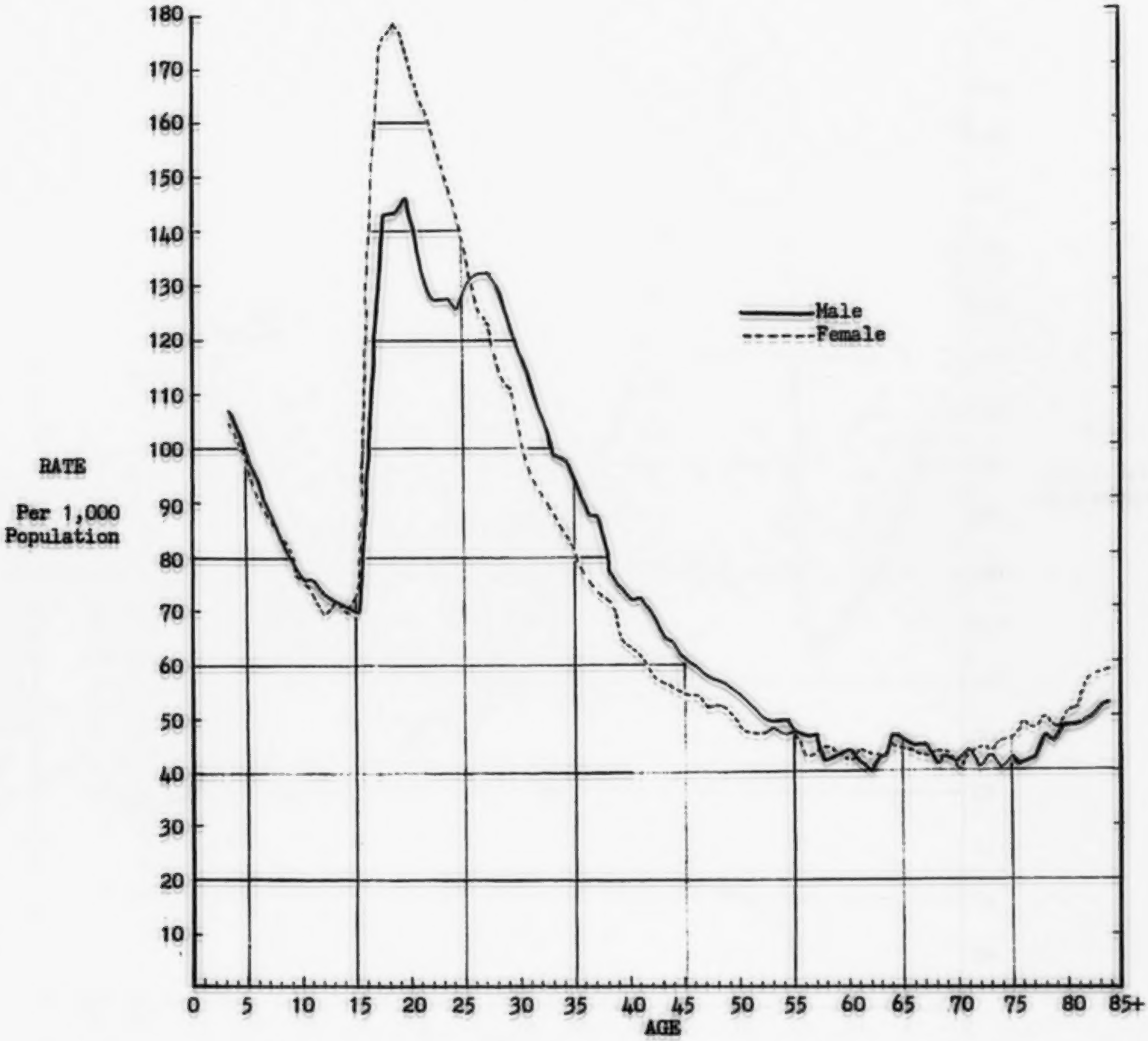
RATE OF MIGRATION BY SEX AND BY SINGLE YEARS OF AGE: UNITED STATES, 1955-1960



Source: U. S. Bureau of the Census, U. S. Census of Population: 1960 Subject Reports. Mobility for States and State Economic Areas, Final P. C. (2) - 2B. Washington: U. S. Government Printing Office, (1963), Table 3.

CHART 3

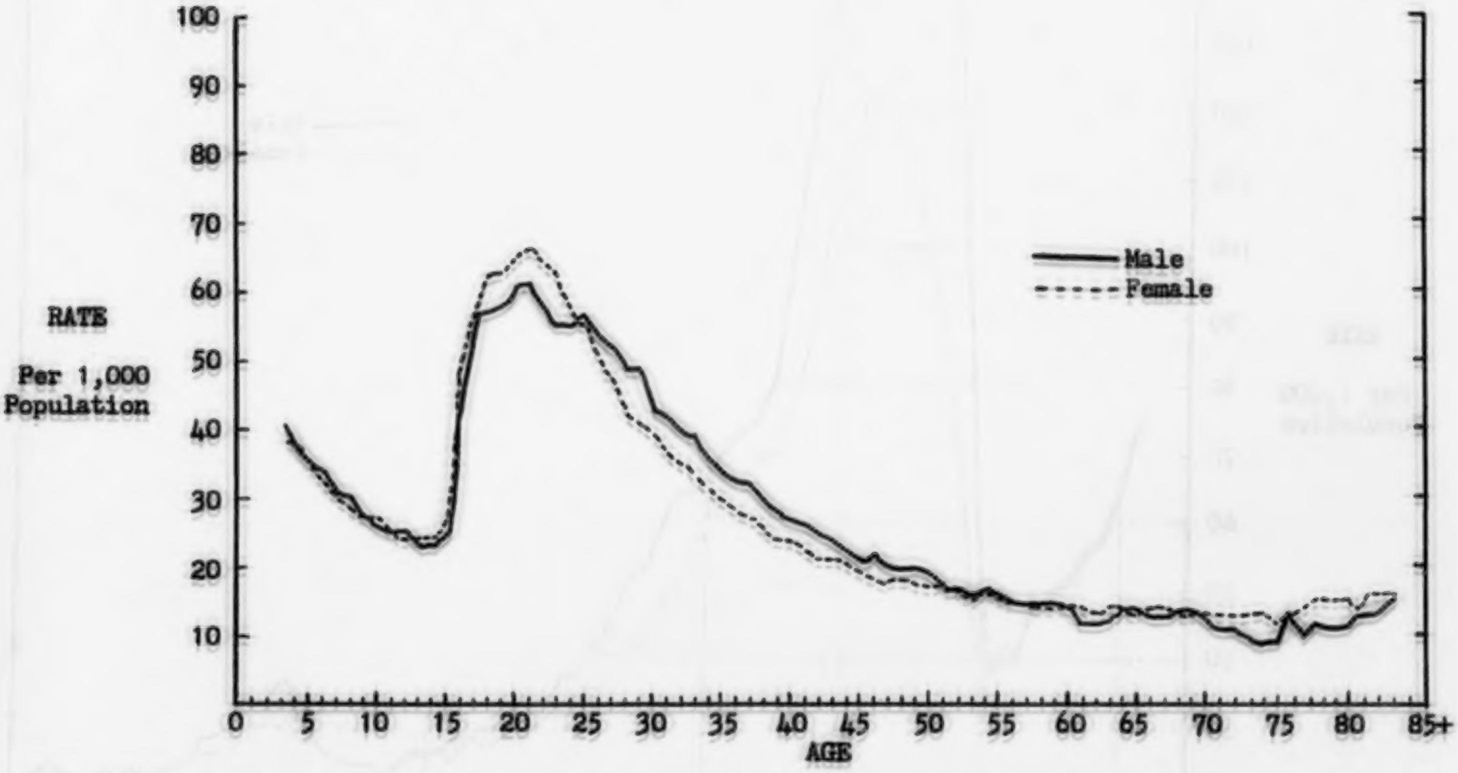
RATE OF INTRASTATE MIGRATION BY SEX AND BY SINGLE YEARS OF AGE
UNITED STATES, 1955-1960



Source: U. S. Bureau of the Census, U. S. Census of Population: 1960 Subject Reports. Mobility for States and State Economic Areas, Final P. C. (2) -2B. Washington: U. S. Government Printing Office, (1963), Table 3.

CHART 4

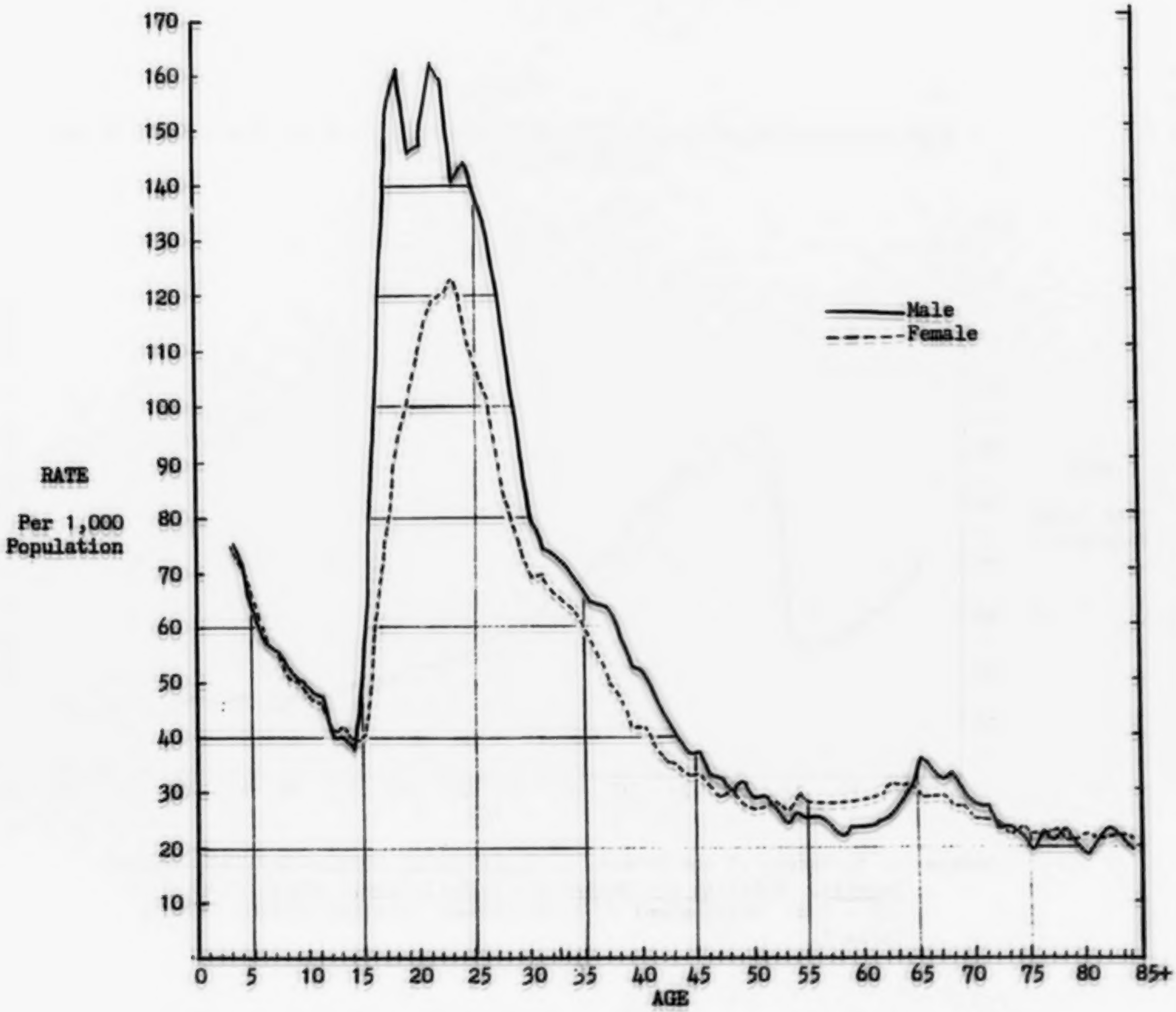
RATE OF MIGRATION BETWEEN CONTIGUOUS STATES BY SEX AND BY SINGLE YEARS OF AGE UNITED STATES, 1955-1960



Source: U. S. Bureau of the Census, U. S. Census of Population: 1960 Subject Reports. Mobility for States and State Economic Areas, Final P. C. (2) - 2 B. Washington: U. S. Government Printing Office, (1963), Table 3.

CHART 5

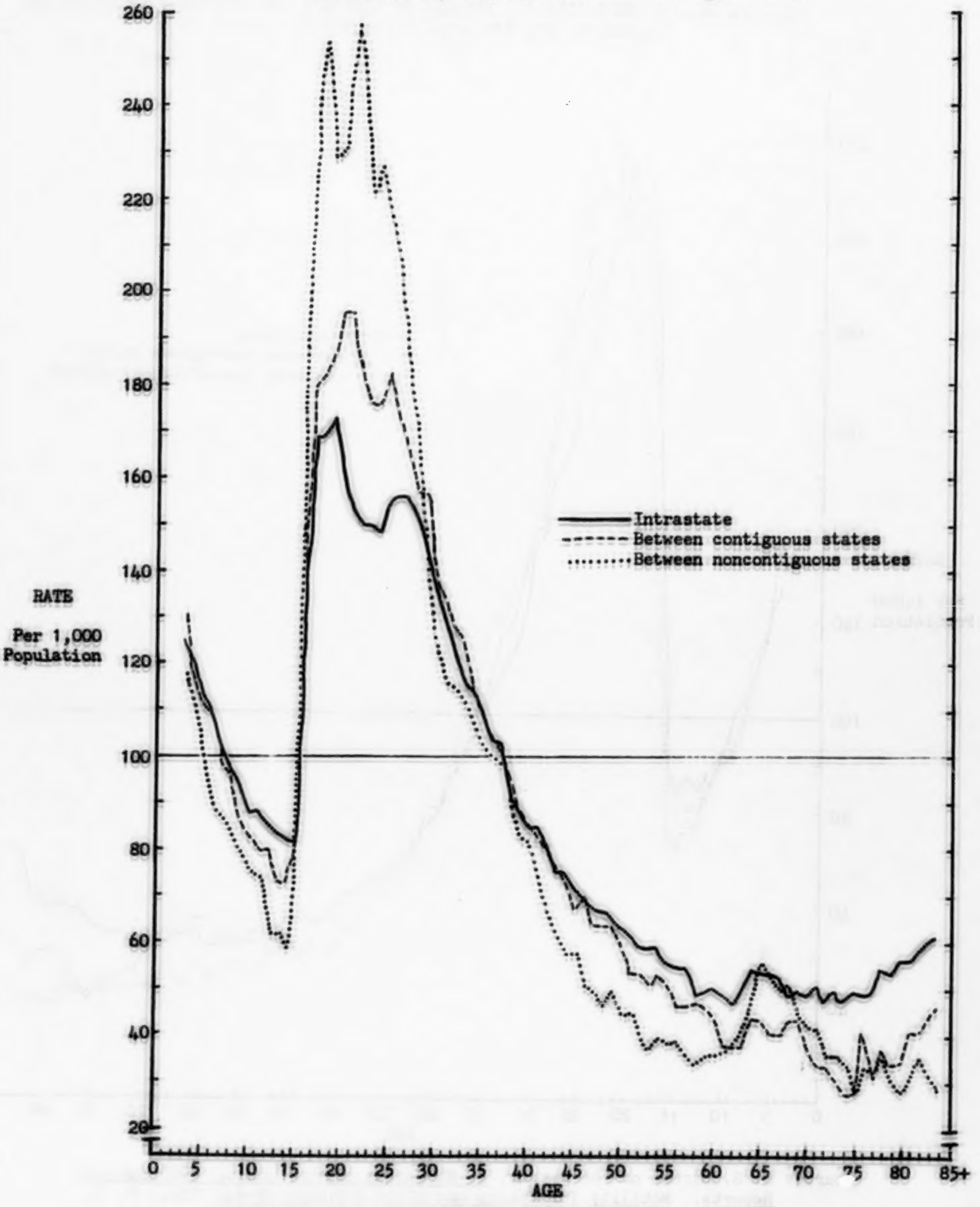
RATE OF MIGRATION BETWEEN NONCONTIGUOUS STATES BY SEX AND BY SINGLE YEARS OF AGE UNITED STATES, 1955-1960



Source: U. S. Bureau of the Census, U. S. Census of Population: 1960 Subject Reports. Mobility for States and State Economic Areas, Final P. C. (2) - 2 B. Washington: U. S. Government Printing Office, (1963), Table 3.

CHART 6

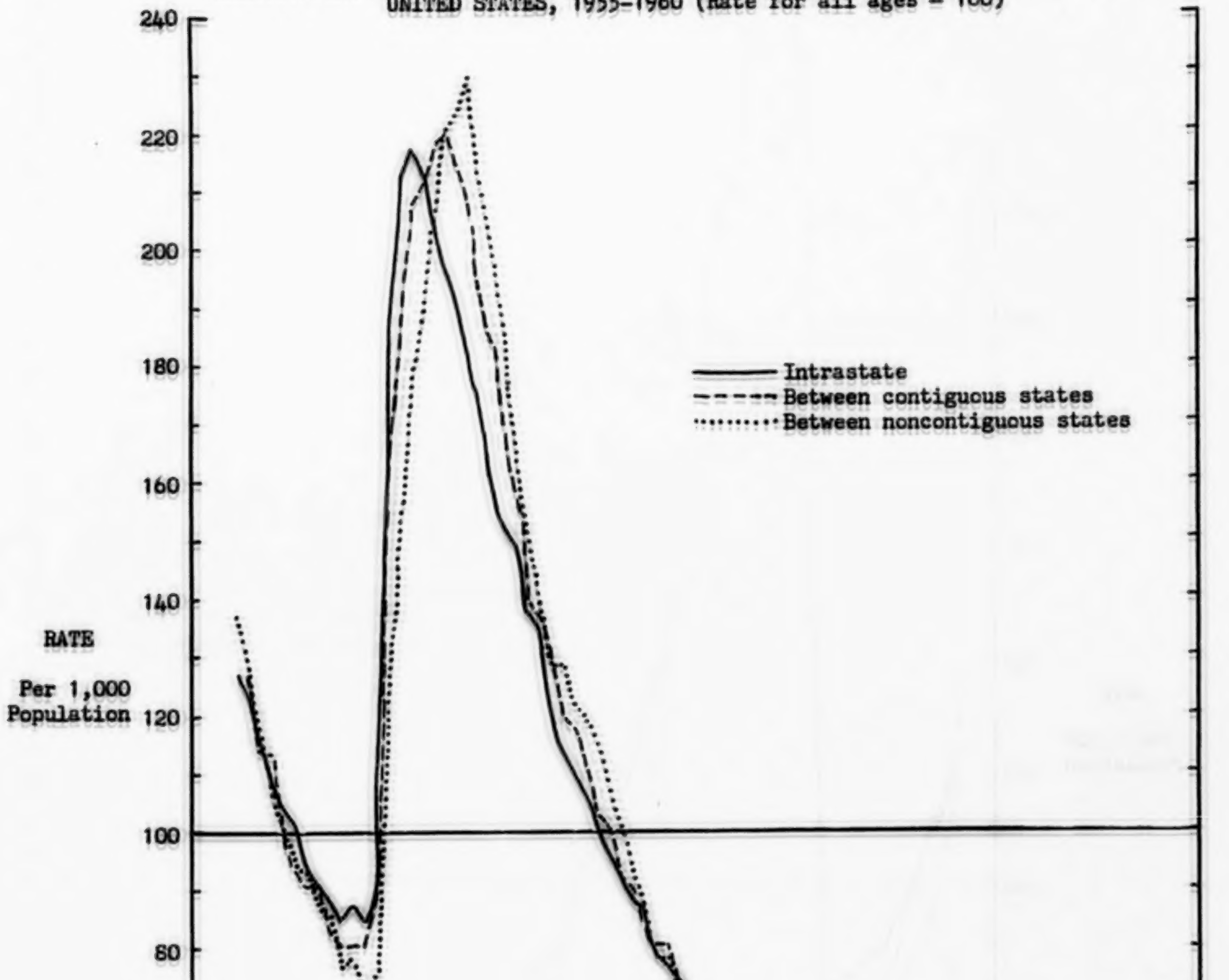
RELATIVE RATE OF MIGRATION FOR MALES BY DISTANCE AND BY SINGLE YEARS OF AGE: UNITED STATES, 1955-1960 (Rate for all ages = 100)



Source: U. S. Bureau of the Census, U. S. Census of Population: 1960 Subject Reports. Mobility for States and State Economic Areas, Final P. C. (2) - 2 B. Washington: U. S. Government Printing Office, (1963), Table 3.

CHART 7

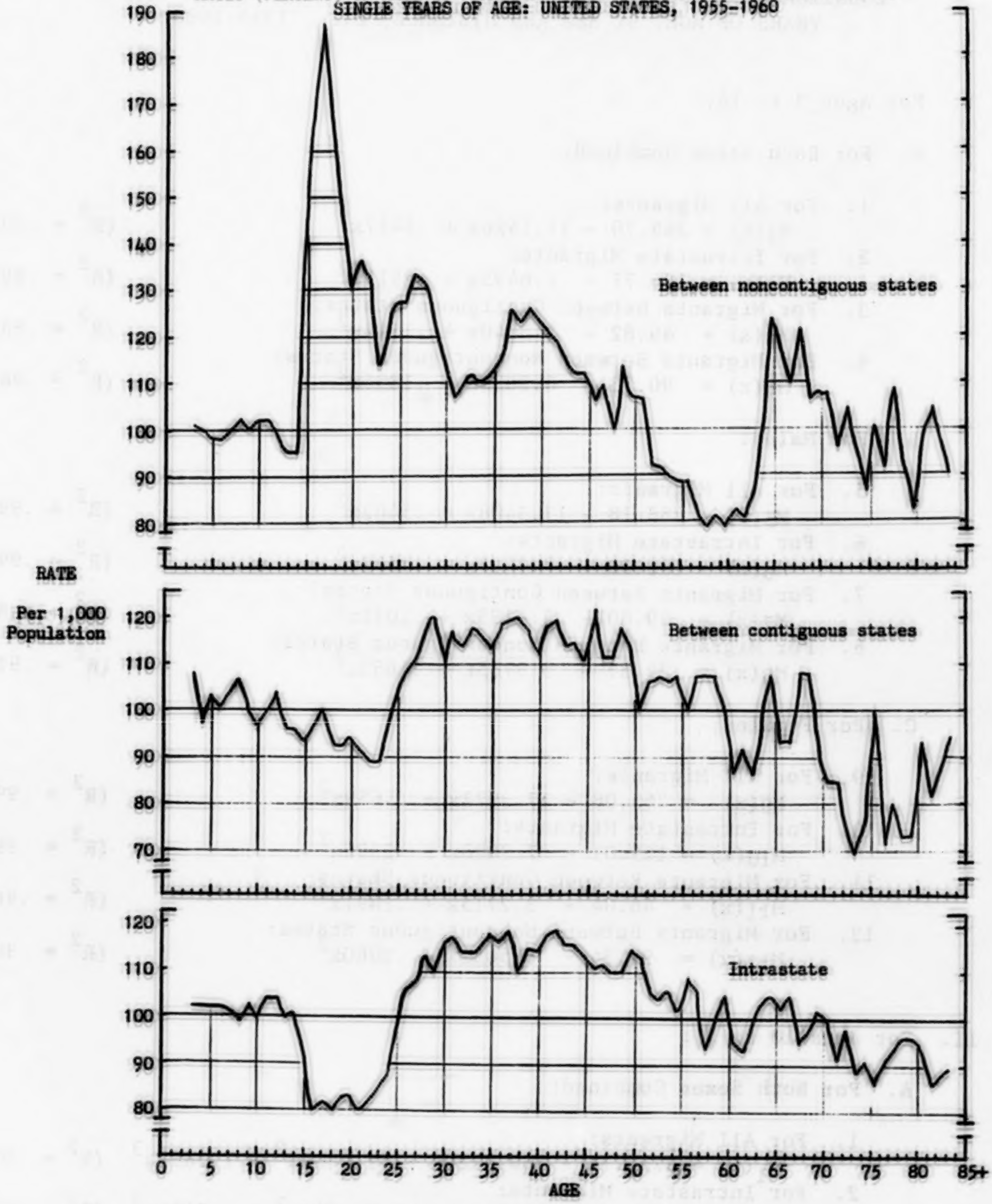
RELATIVE RATE OF MIGRATION FOR FEMALES BY DISTANCE AND BY SINGLE YEARS OF AGE: UNITED STATES, 1955-1960 (Rate for all ages = 100)



Source: U. S. Bureau of the Census, U. S. Census of Population: 1960 Subject Reports. Mobility for States and State Economic Areas, Final P. C. (2) - 2 B. Washington: U. S. Government Printing Office, (1963), Table 3.

CHART 8

RATIO (PERCENT) OF MALE TO FEMALE RATES OF MIGRATION BY DISTANCE AND BY SINGLE YEARS OF AGE: UNITED STATES, 1955-1960



Source: U. S. Bureau of the Census, U. S. Census of Population: 1960 Subject Reports. Mobility for States and State Economic Areas, Final P. C. (2) - 2 B. Washington: U. S. Government Printing Office, (1963), Table 3.

TABLE A

EQUATIONS FOR POLYNOMIALS FIT TO RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND DISTANCE, U.S., 1955-1960

I. For Ages 3 to 14:

A. For Both Sexes Combined:

1. For All Migrants:
$M_1(x) = 265.70 - 17.1526x + .5427x^2$ $(R^2 = .9957)$
2. For Intrastate Migrants:
$M_2(x) = 126.77 - 7.6495x + .2515x^2$ $(R^2 = .9954)$
3. For Migrants Between Contiguous States:
$M_3(x) = 49.82 - 3.5040x + .1144x^2$ $(R^2 = .9886)$
4. For Migrants Between Noncontiguous States:
$M_4(x) = 90.53 - 6.2630x + .1856x^2$ $(R^2 = .9837)$

B. For Males:

5. For All Migrants:
$M_5(x) = 268.18 - 17.3408x + .5402x^2$ $(R^2 = .9964)$
6. For Intrastate Migrants:
$M_6(x) = 128.00 - 7.7437x + .2572x^2$ $(R^2 = .9952)$
7. For Migrants Between Contiguous States:
$M_7(x) = 49.80 - 3.4193x + .1071x^2$ $(R^2 = .9879)$
8. For Migrants Between Noncontiguous States:
$M_8(x) = 89.57 - 5.9785x + .1653x^2$ $(R^2 = .9731)$

C. For Females:

9. For All Migrants:
$M_9(x) = 265.08 - 17.3971x + .5659x^2$ $(R^2 = .9956)$
10. For Intrastate Migrants:
$M_{10}(x) = 125.01 - 7.3828x + .2395x^2$ $(R^2 = .9908)$
11. For Migrants Between Contiguous States:
$M_{11}(x) = 48.04 - 3.2715x + .1091x^2$ $(R^2 = .9675)$
12. For Migrants Between Noncontiguous States:
$M_{12}(x) = 91.24 - 6.5682x + .2080x^2$ $(R^2 = .9885)$

II. For Ages 10 to 21:

A. For Both Sexes Combined:

1. For All Migrants:
$M_1(x) = 3752.74 - 764.3120x + 51.4407x^2 - 1.0851x^3$ $(R^2 = .9112)$
2. For Intrastate Migrants:
$M_2(x) = 1824.80 - 374.1723x + 25.4742x^2 - .5463x^3$ $(R^2 = .8812)$
3. For Migrants Between Contiguous States:
$M_3(x) = 630.98 - 127.5554x + 8.5264x^2 - .1782x^3$ $(R^2 = .9309)$
4. For Migrants Between Noncontiguous States:
$M_4(x) = 1310.12 - 265.5543x + 17.6497x^2 - .3652x^3$ $(R^2 = .9305)$

(TABLE A Continued)

B. For Males:

5. For All Migrants:
$M_5(x) = 4033.05 - 826.3091x + 55.8457x^2 - 1.1845x^3 \quad (R^2 = .8988)$
6. For Intrastate Migrants:
$M_6(x) = 1536.96 - 311.1799x + 21.1018x^2 - .4513x^3 \quad (R^2 = .8675)$
7. For Migrants Between Contiguous States:
$M_7(x) = 582.04 - 117.4968x + 7.8631x^2 - .1644x^3 \quad (R^2 = .9106)$
8. For Migrants Between Noncontiguous States:
$M_8(x) = 1875.68 - 389.6749x + 26.3467x^2 - .5572x^3 \quad (R^2 = .8948)$

C. For Females:

9. For All Migrants:
$M_9(x) = 3459.60 - 699.9963x + 46.8923x^2 - .9825x^3 \quad (R^2 = .9242)$
10. For Intrastate Migrants:
$M_{10}(x) = 2074.50 - 428.7589x + 29.2596x^2 - .6283x^3 \quad (R^2 = .8826)$
11. For Migrants Between Contiguous States:
$M_{11}(x) = 624.09 - 126.1458x + 8.4272x^2 - .1756x^3 \quad (R^2 = .9434)$
12. For Migrants Between Noncontiguous States:
$M_{12}(x) = 754.14 - 143.4064x + 9.0723x^2 - .1753x^3 \quad (R^2 = .9626)$

III. For Ages 18 to 83:

A. For Both Sexes Combined:

1. For All Migrants:
$M_1(x) = 635.45 - 17.3135x + .1323x^2 \quad (R^2 = .9772)$
2. For Intrastate Migrants:
$M_2(x) = 275.62 - 7.3204x + .0568x^2 \quad (R^2 = .9916)$
3. For Migrants Between Contiguous States:
$M_3(x) = 113.32 - 3.0591x + .0229x^2 \quad (R^2 = .9835)$
4. For Migrants Between Noncontiguous States:
$M_4(x) = 246.84 - 6.9495x + .0528x^2 \quad (R^2 = .9391)$

B. For Males:

5. For All Migrants:
$M_5(x) = 647.94 - 17.2802x + .1290x^2 \quad (R^2 = .9805)$
6. For Intrastate Migrants:
$M_6(x) = 248.92 - 6.0958x + .0448x^2 \quad (R^2 = .9773)$
7. For Migrants Between Contiguous States:
$M_7(x) = 107.93 - 2.7522x + .0195x^2 \quad (R^2 = .9826)$
8. For Migrants Between Noncontiguous States:
$M_8(x) = 290.95 - 8.4249x + .0646x^2 \quad (R^2 = .9426)$

(TABLE A Continued)

C. For Females:

9. For All Migrants:
$M_9(x) = 623.33 - 17.3195x + .1351x^2$ ($R^2 = .9661$)
10. For Intrastate Migrants:
$M_{10}(x) = 300.43 - 8.4514x + .0677x^2$ ($R^2 = .9762$)
11. For Migrants Between Contiguous States:
$M_{11}(x) = 117.30 - 3.2941x + .0255x^2$ ($R^2 = .9695$)
12. For Migrants Between Noncontiguous States:
$M_{12}(x) = 204.99 - 5.5495x + .0416x^2$ ($R^2 = .9191$)

IV. For Ages 23 to 57:

A. For Both Sexes Combined:

1. For All Migrants:
$M_1(x) = 824.25 - 27.2375x + .2527x^2$ ($R^2 = .9958$)
2. For Intrastate Migrants:
$M_2(x) = 321.27 - 9.7416x + .0864x^2$ ($R^2 = .9948$)
3. For Migrants Between Contiguous States:
$M_3(x) = 141.99 - 4.5717x + .0414x^2$ ($R^2 = .9954$)
4. For Migrants Between Noncontiguous States:
$M_4(x) = 358.91 - 12.8218x + .1236x^2$ ($R^2 = .9836$)

B. For Males:

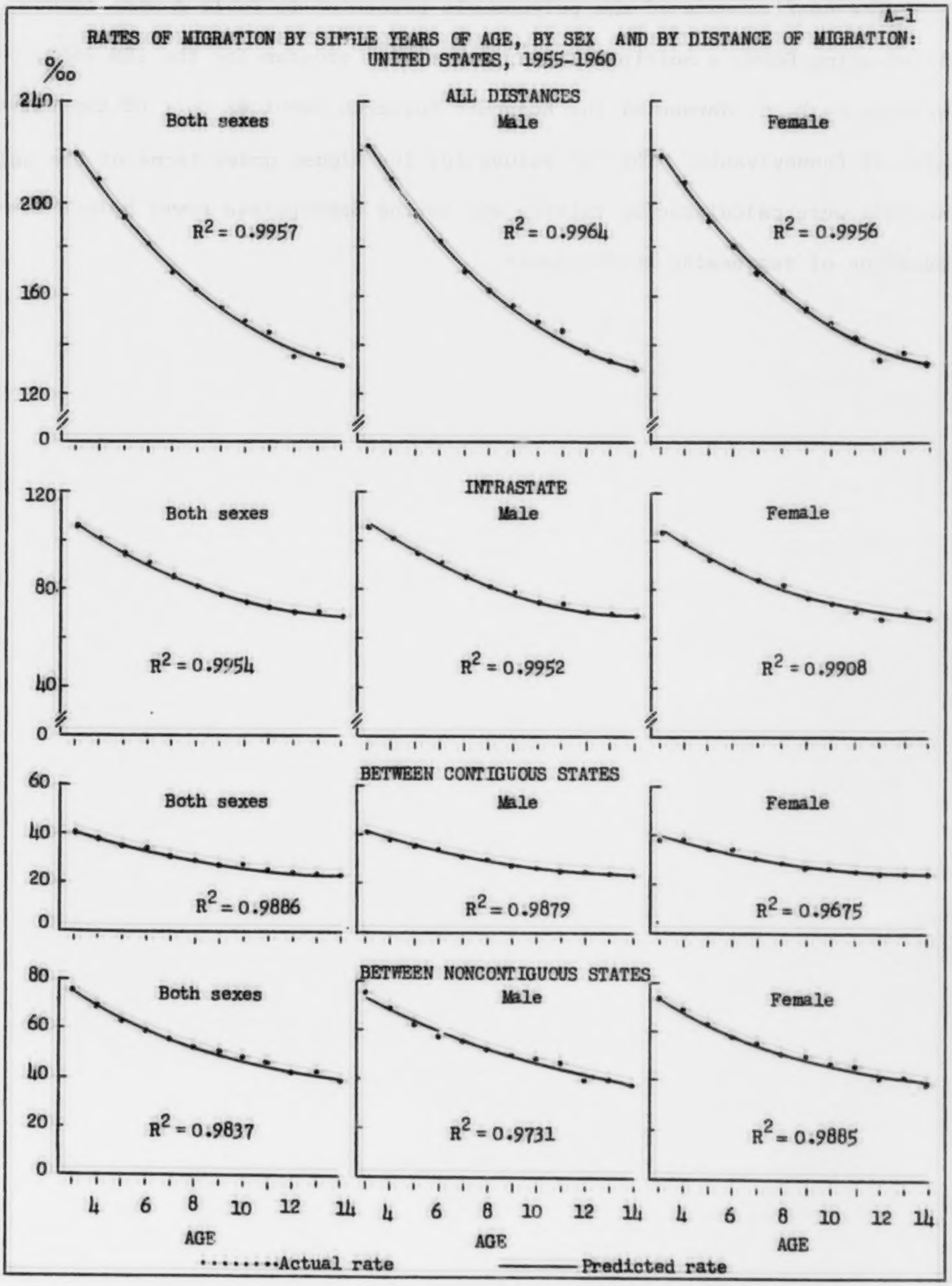
5. For All Migrants:
$M_5(x) = 809.87 - 25.4697x + .2250x^2$ ($R^2 = .9915$)
6. For Intrastate Migrants:
$M_6(x) = 281.86 - 7.4565x + .0579x^2$ ($R^2 = .9746$)
7. For Migrants Between Contiguous States:
$M_7(x) = 132.19 - 3.9313x + .0330x^2$ ($R^2 = .9906$)
8. For Migrants Between Noncontiguous States:
$M_8(x) = 394.72 - 14.0233x + .1333x^2$ ($R^2 = .9732$)

C. For Females:

9. For All Migrants:
$M_9(x) = 840.08 - 29.0374x + .2805x^2$ ($R^2 = .9932$)
10. For Intrastate Migrants:
$M_{10}(x) = 360.50 - 12.0041x + .1146x^2$ ($R^2 = .9940$)
11. For Migrants Between Contiguous States:
$M_{11}(x) = 152.82 - 5.2638x + .0505x^2$ ($R^2 = .9886$)
12. For Migrants Between Noncontiguous States:
$M_{12}(x) = 325.38 - 11.7218x + .1150x^2$ ($R^2 = .9865$)

A NOTE ON THE COMPUTATIONS

The coefficients of the polynomials presented in Table A were calculated using ECON, a multiple linear regression program for the IBM 7040, written by M. R. Norman of the Economic Research Services Unit of the University of Pennsylvania. The "x" values for the higher order terms of the polynomials were calculated by raising age to the appropriate power before computation of regression coefficients.

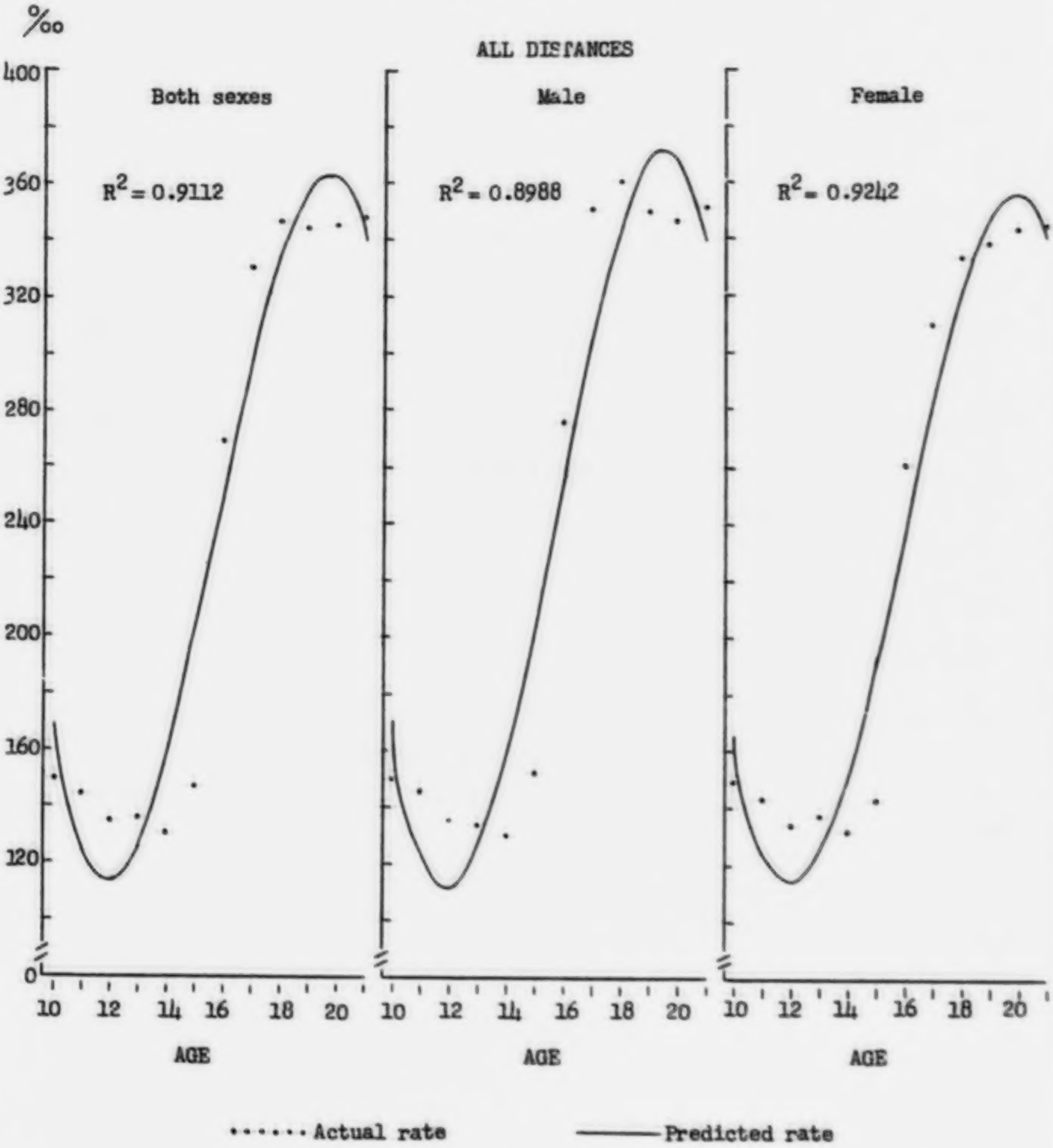


A-1

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960

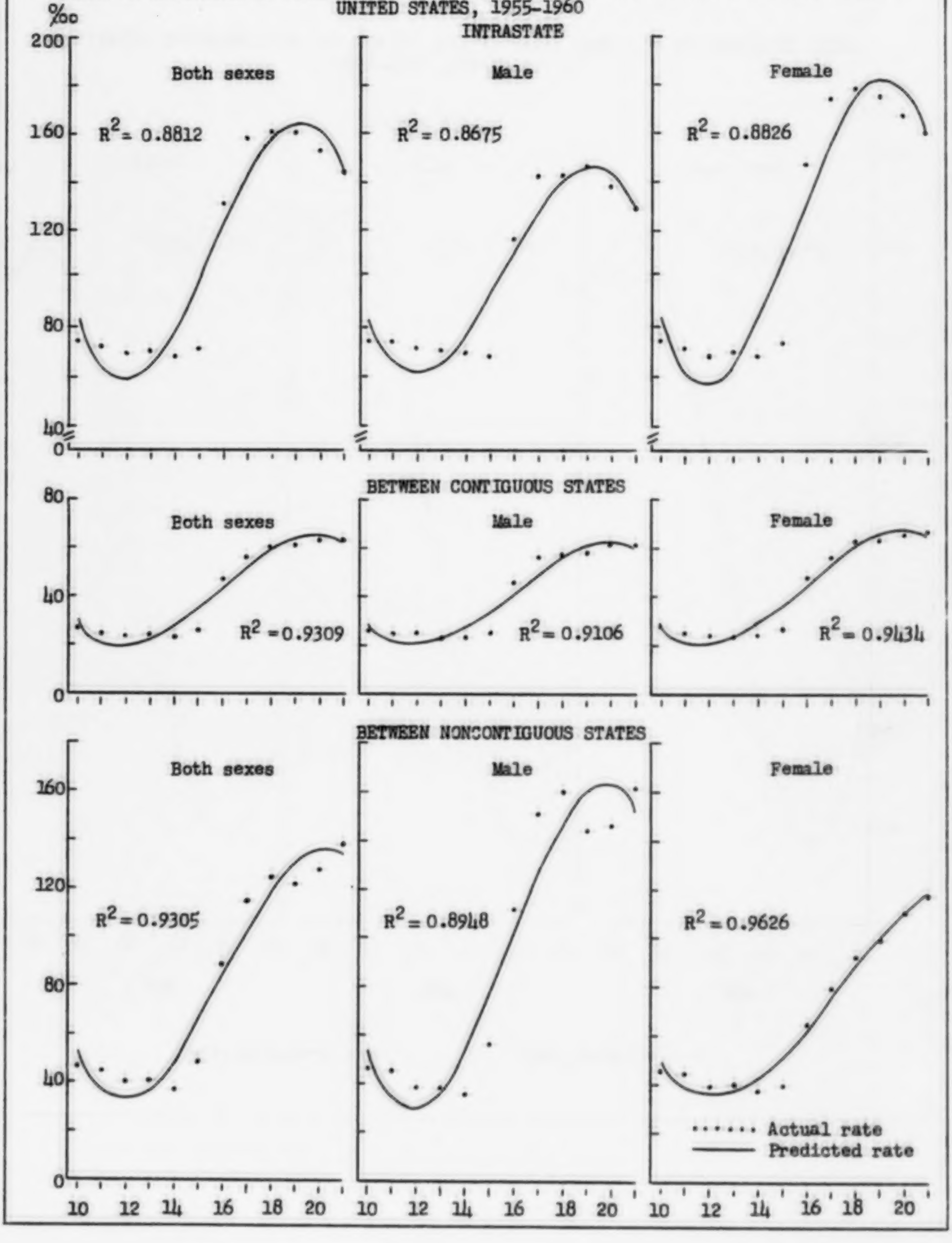
A-2

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION:
UNITED STATES, 1955-1960



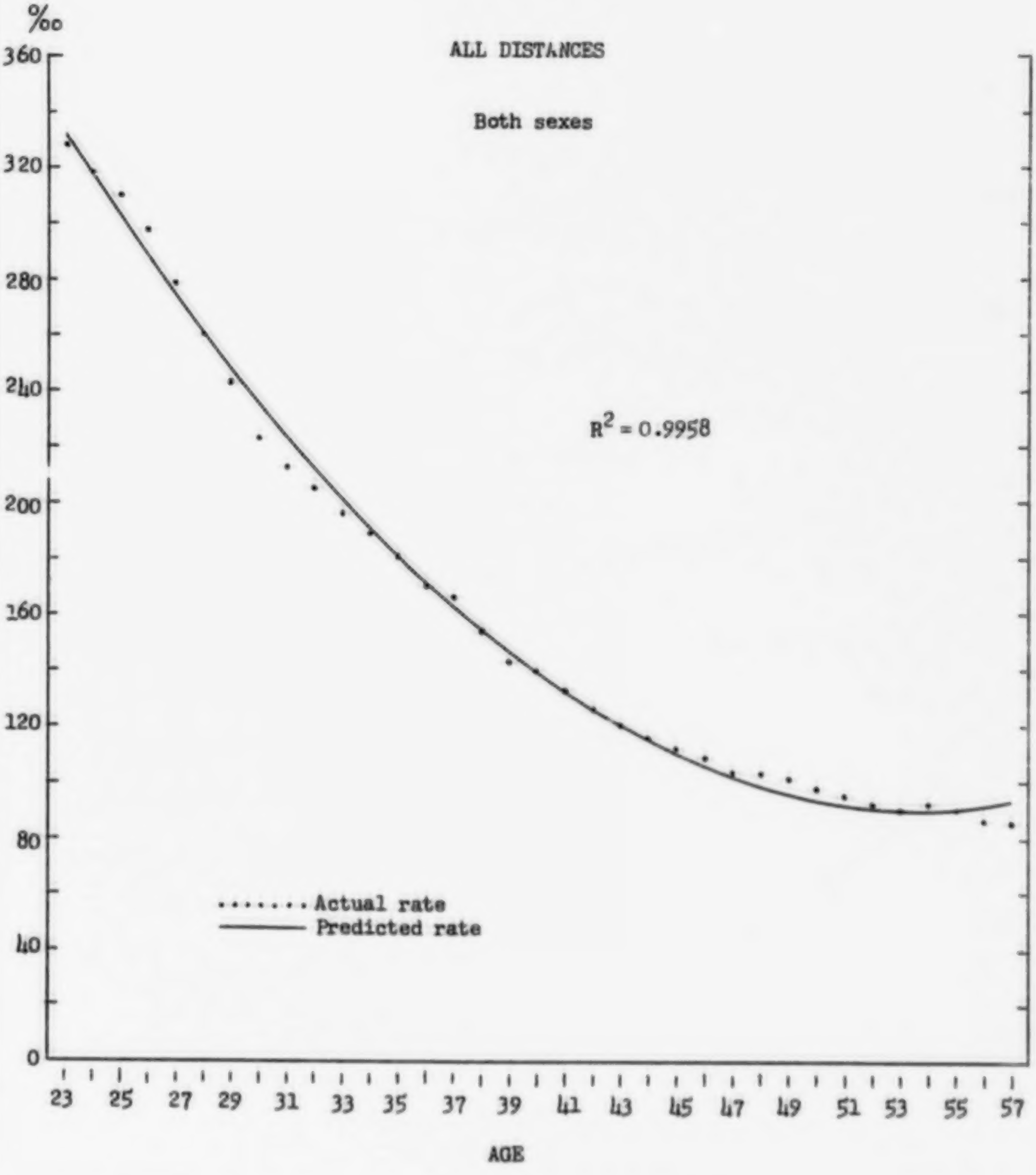
A-3

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960



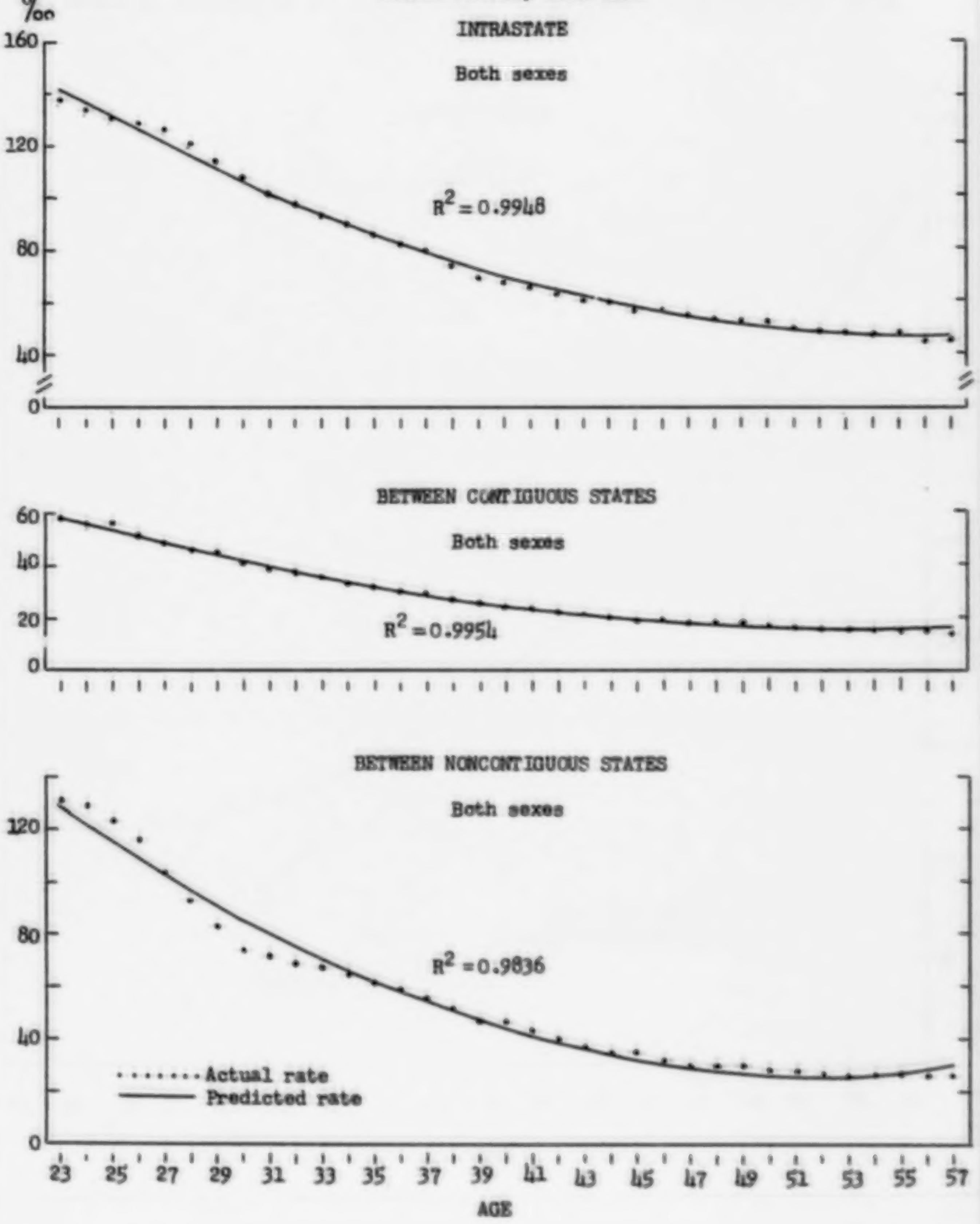
A-4

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION:
UNITED STATES, 1955-1960



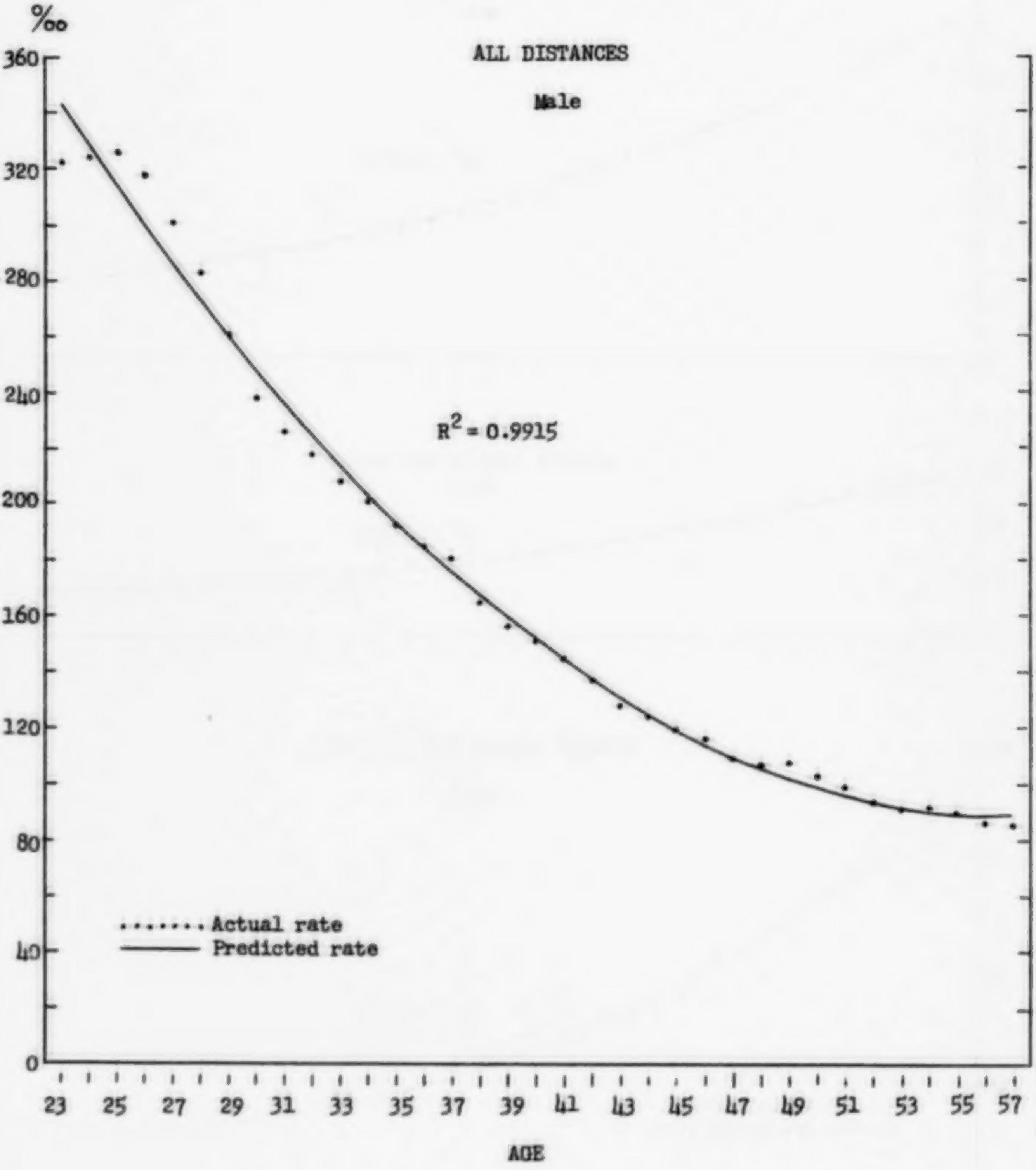
A-5

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960



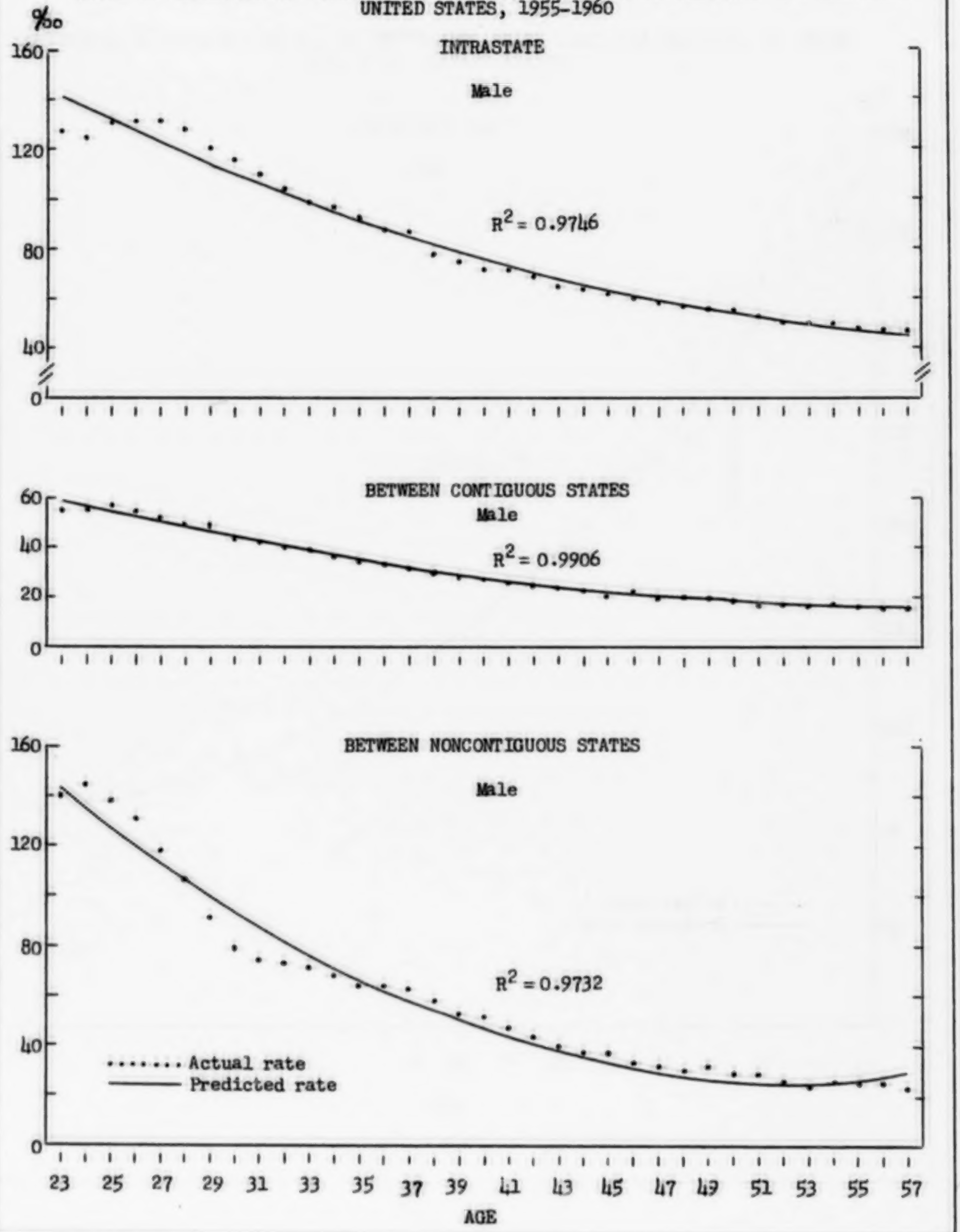
A-6

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960



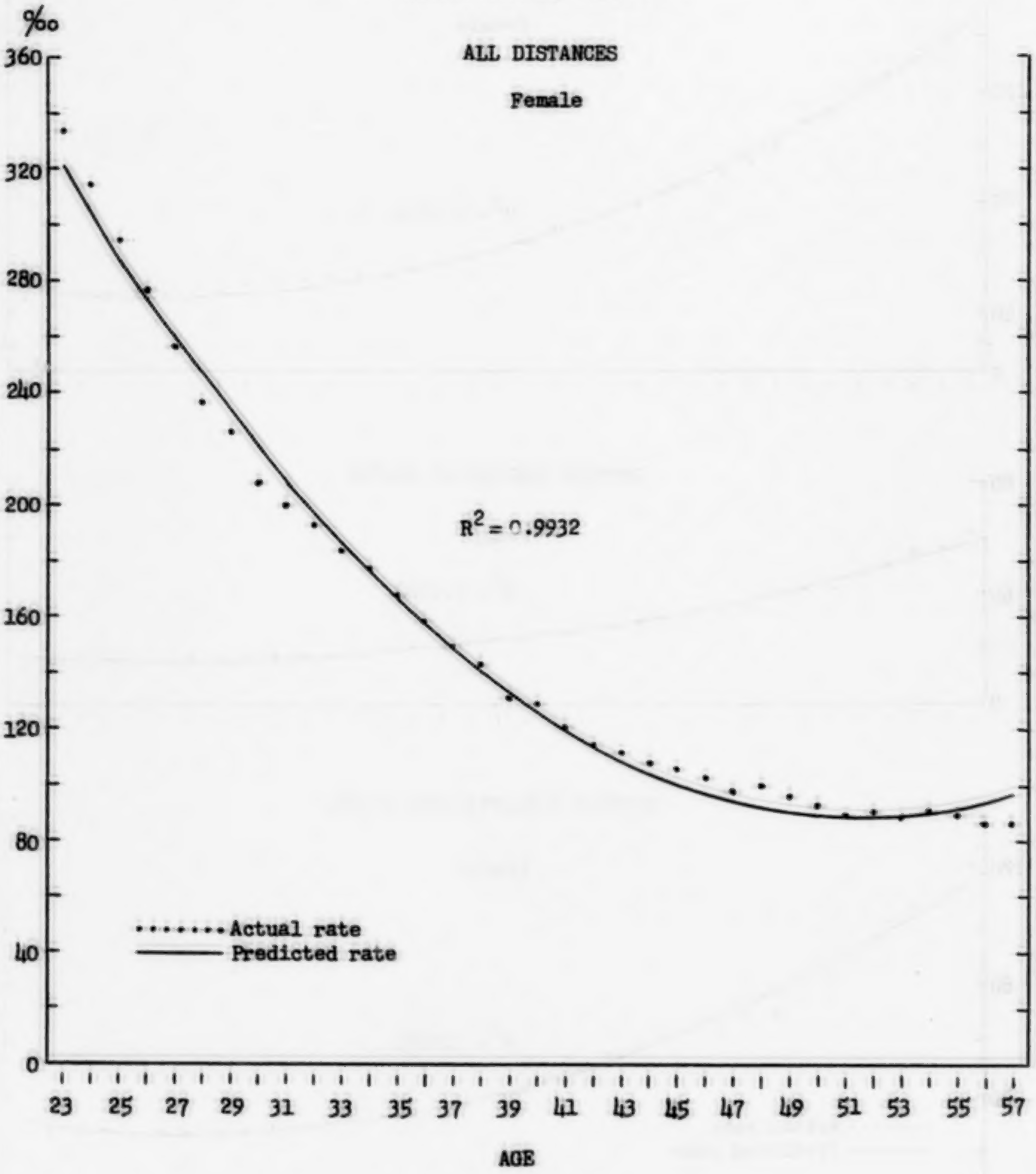
A-7

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960



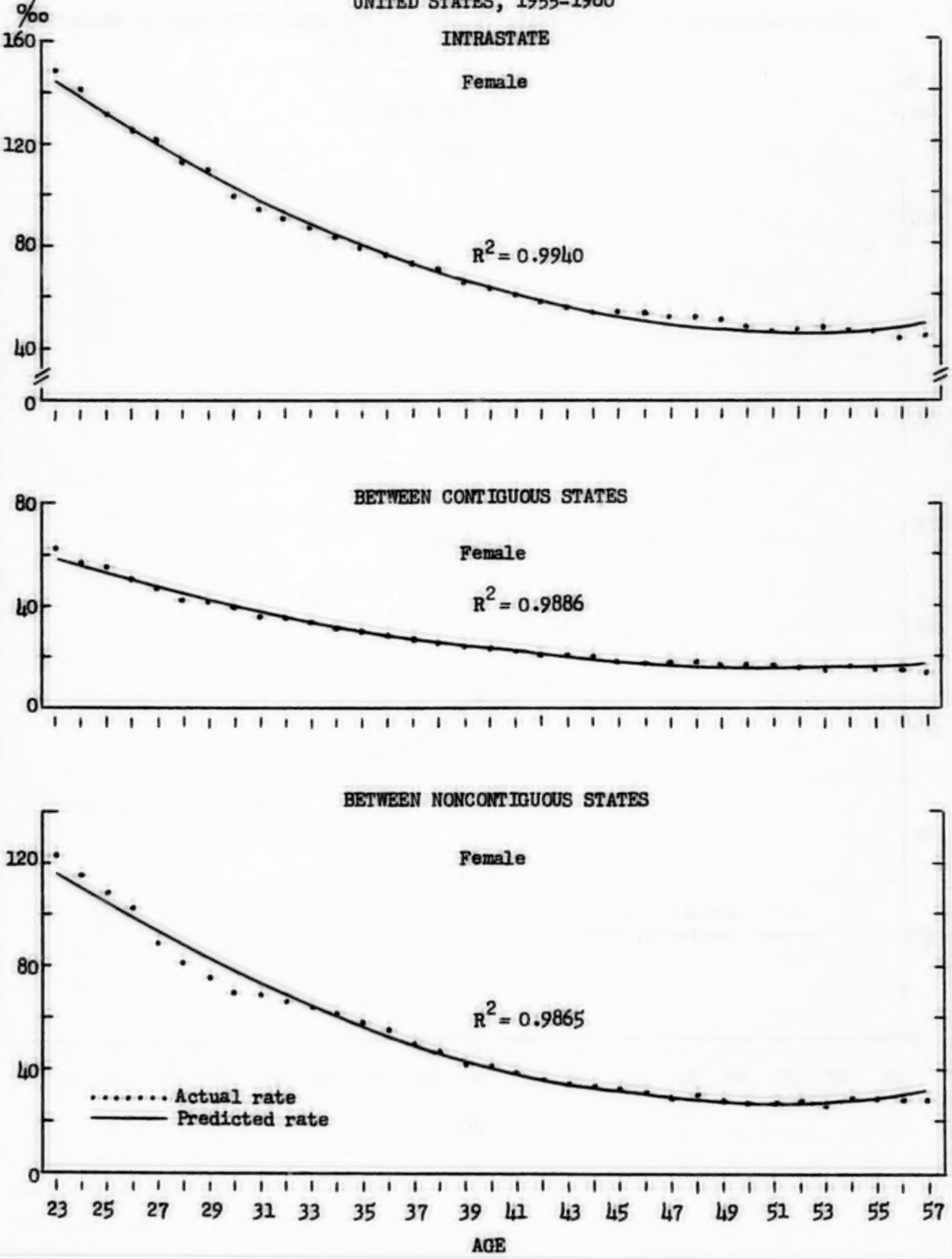
A-8

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960



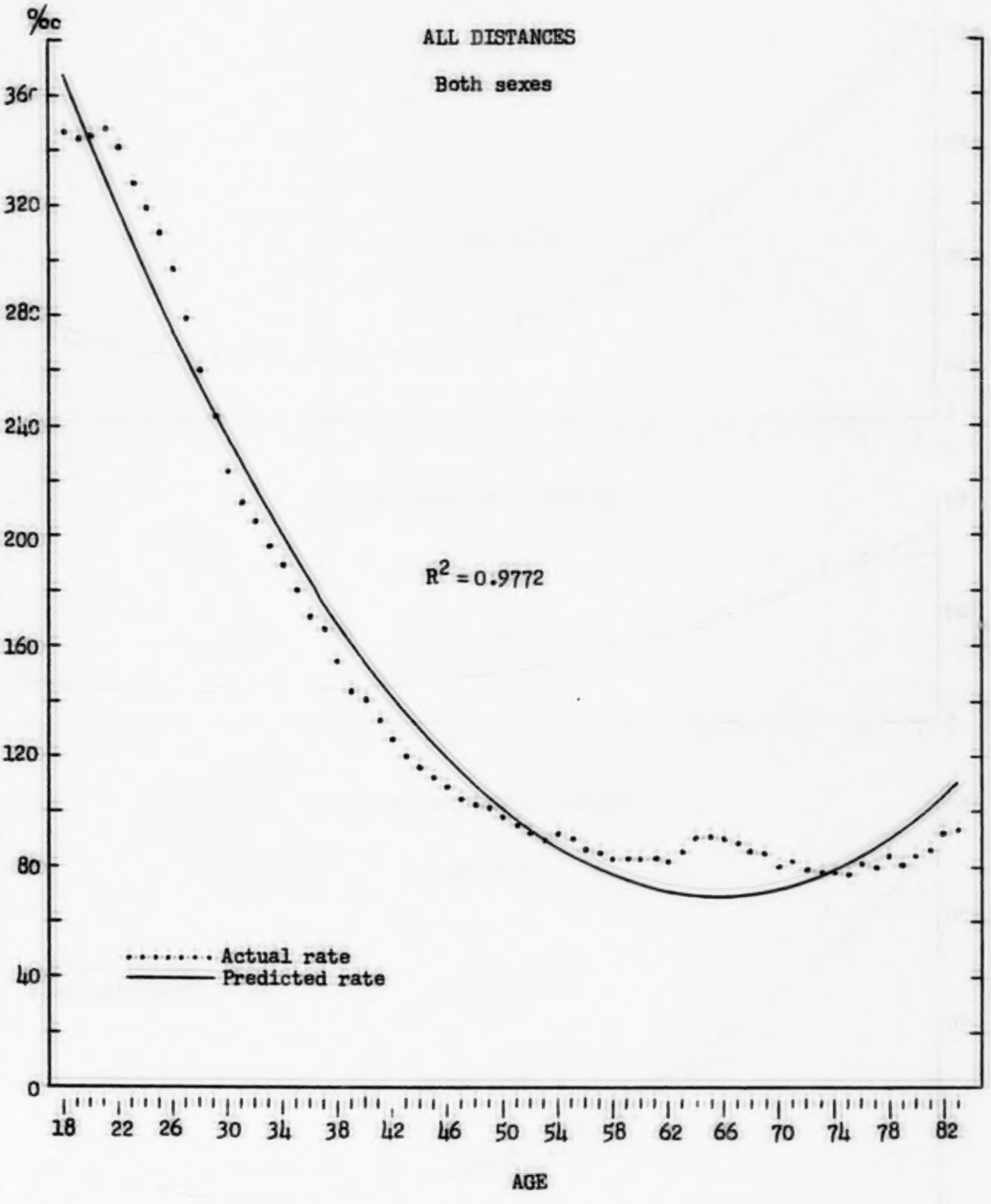
A-9

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION:
UNITED STATES, 1955-1960



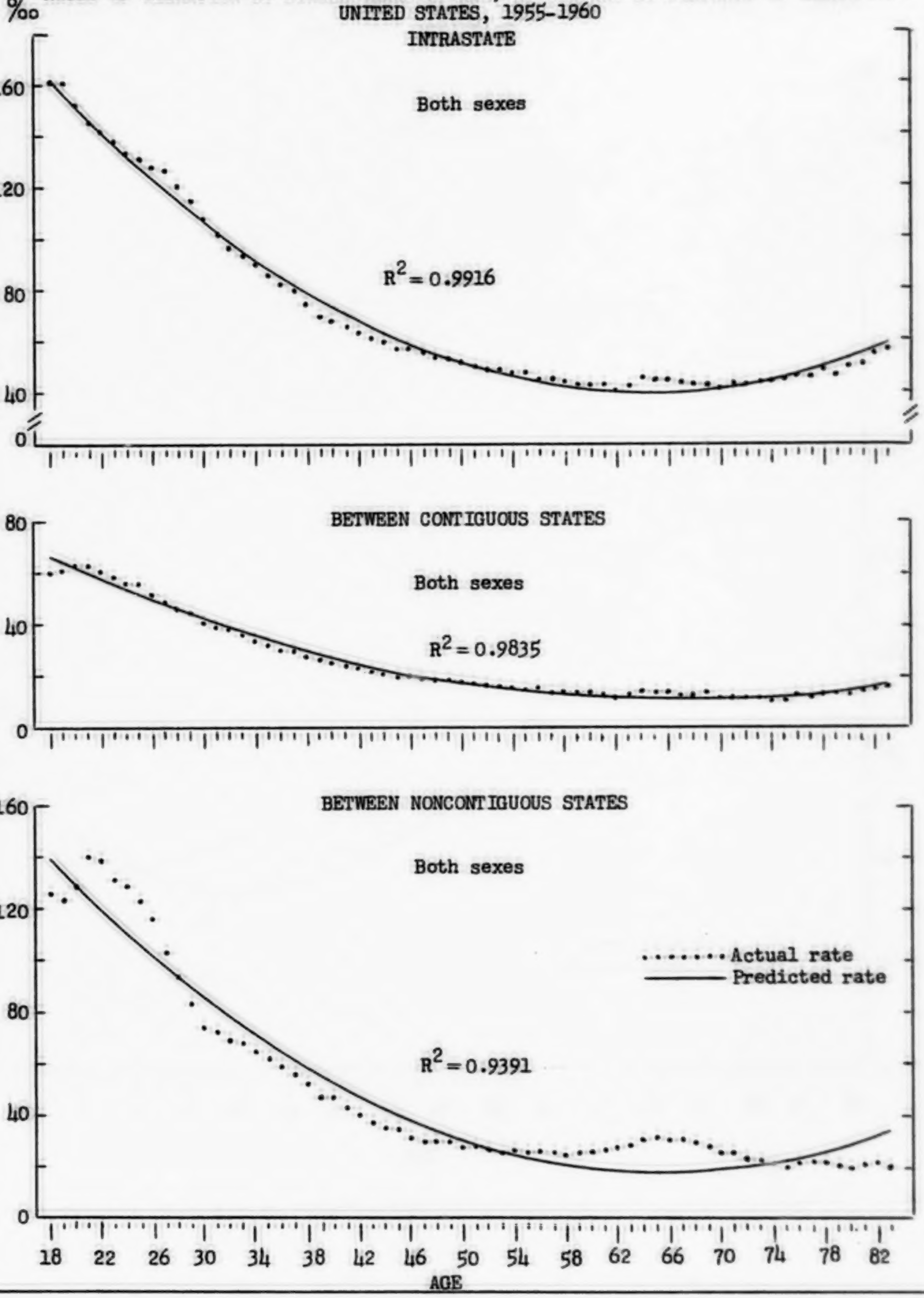
A-10

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION:
UNITED STATES, 1955-1960



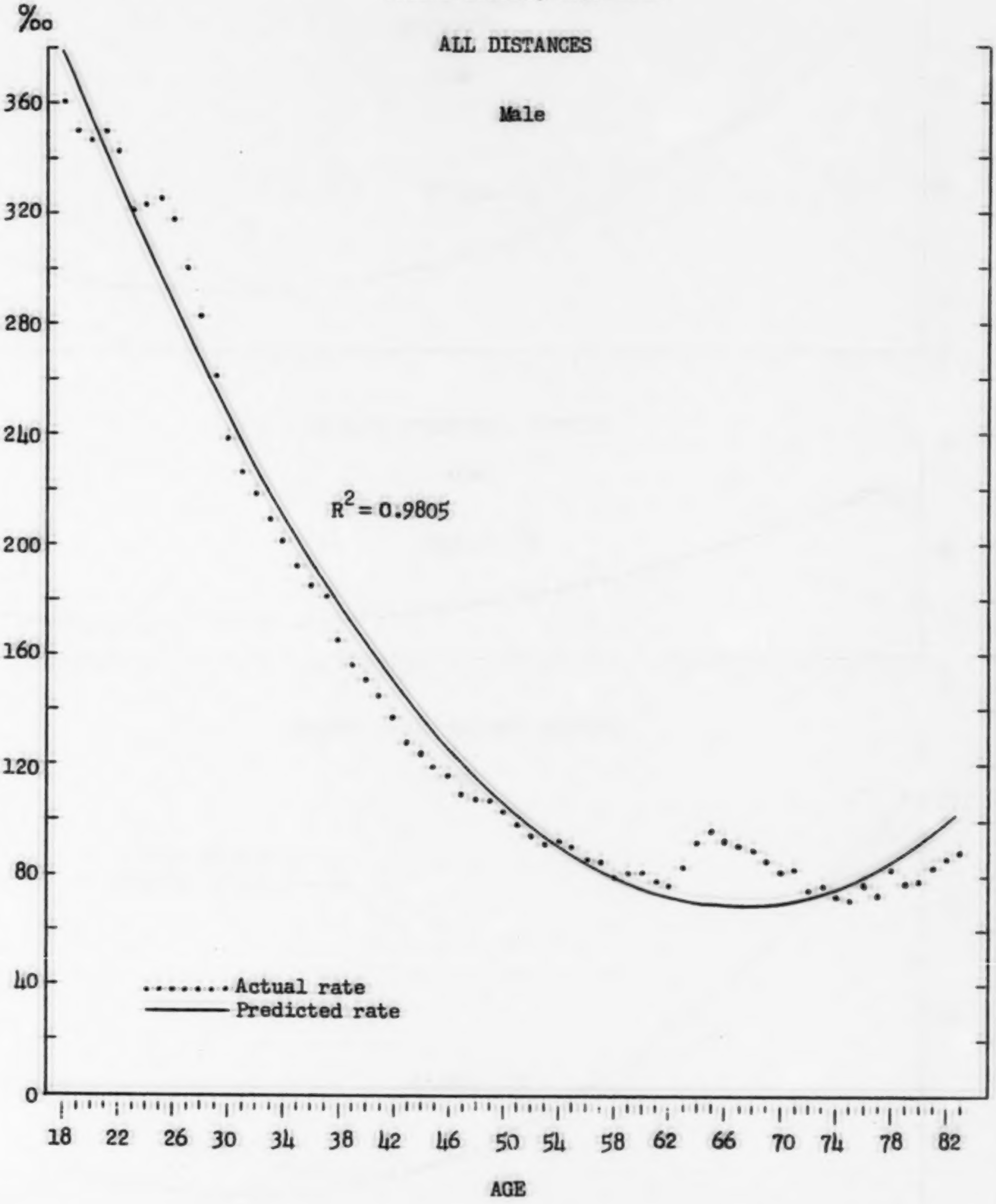
A-11

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION:
UNITED STATES, 1955-1960



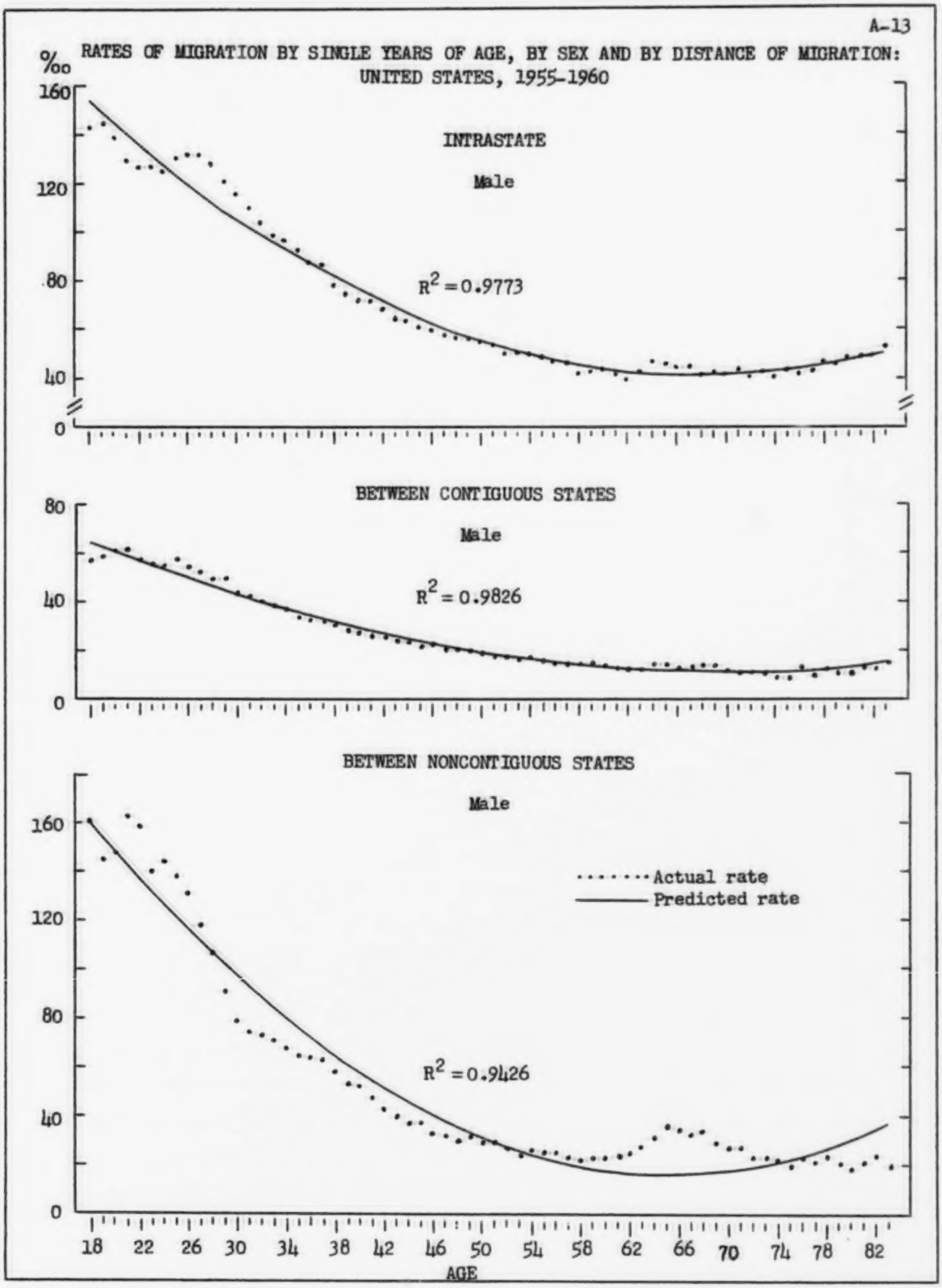
A-12

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960



ALL DISTANCES

Male

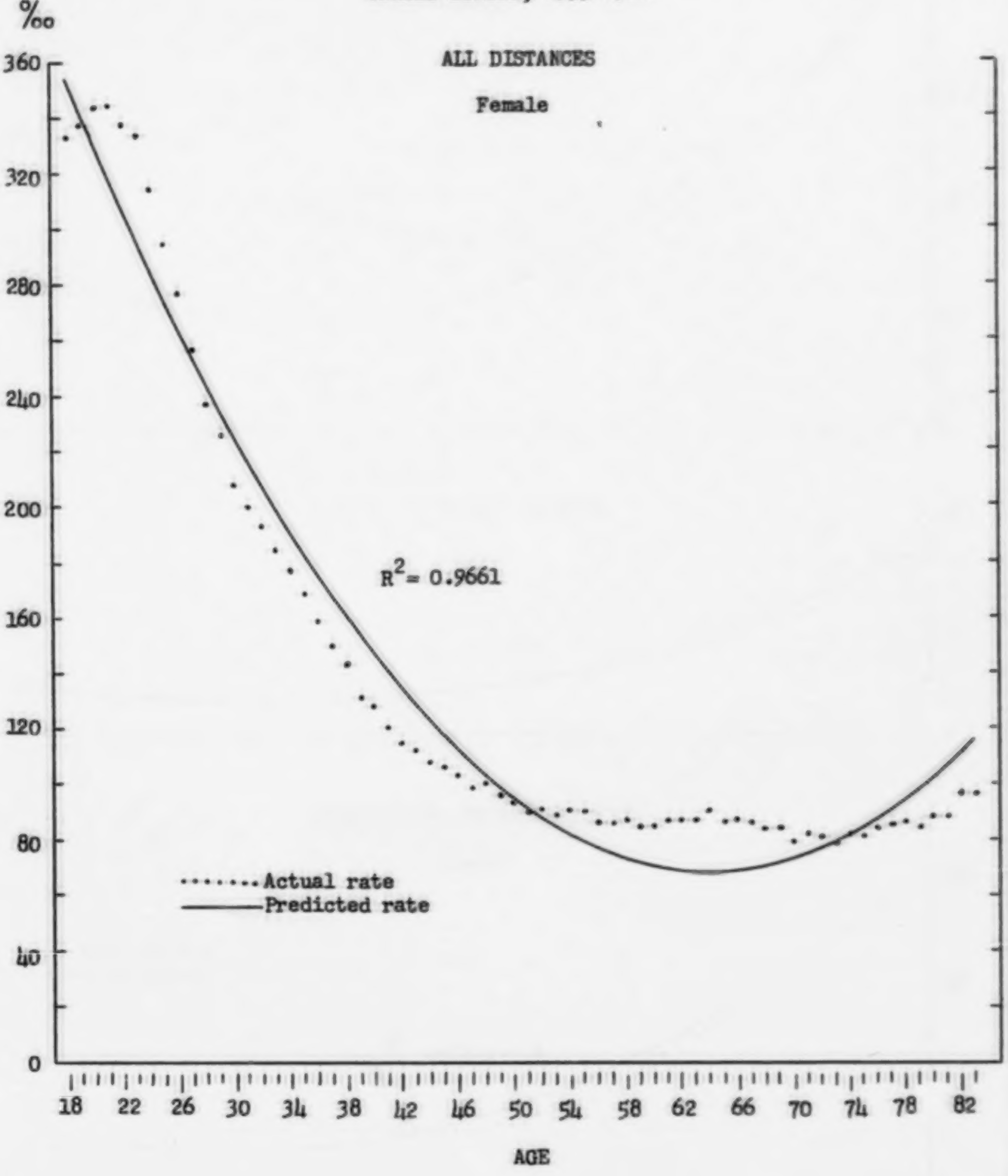


A-13

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960

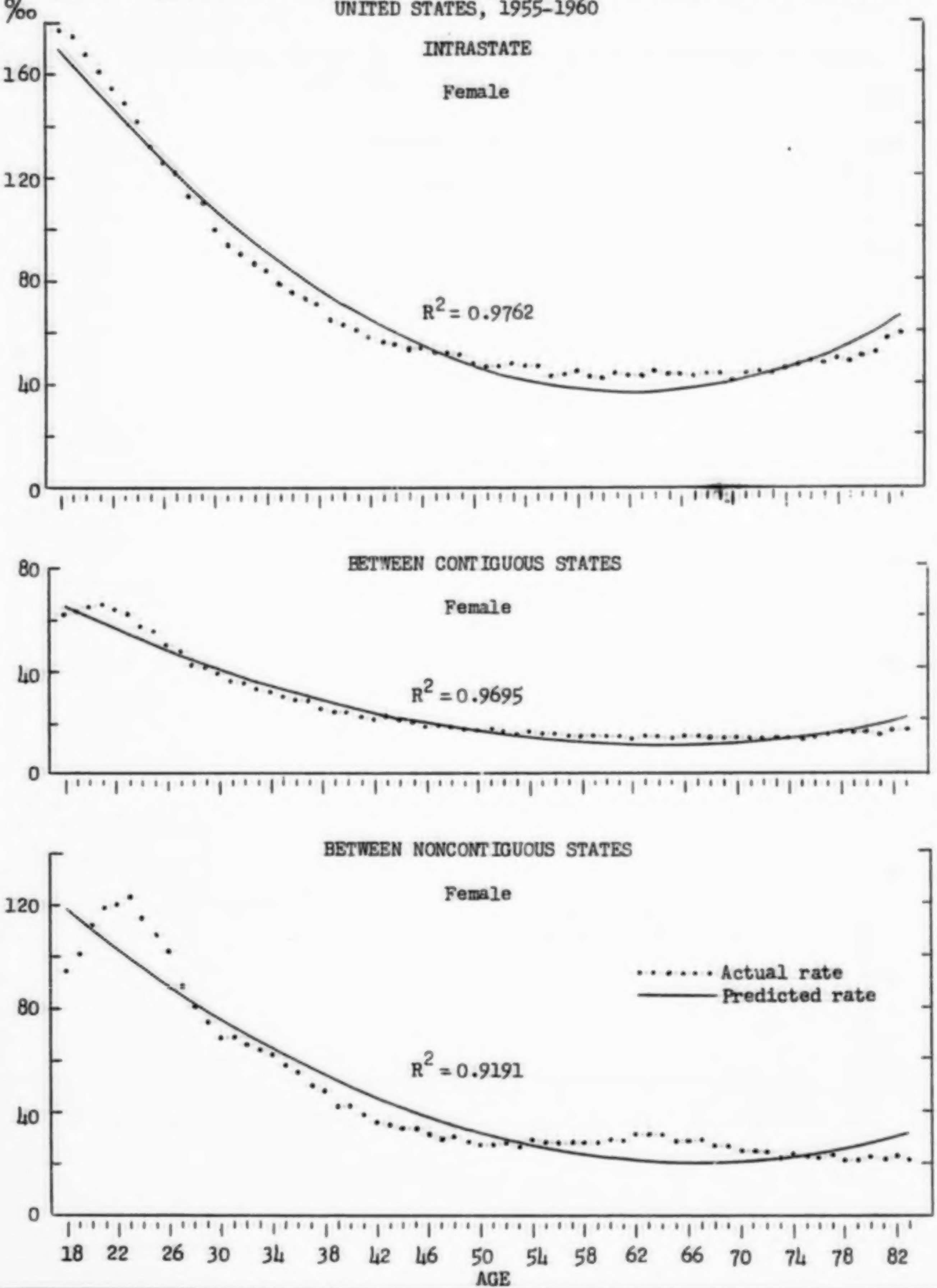
A-14

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960



A-15

RATES OF MIGRATION BY SINGLE YEARS OF AGE, BY SEX AND BY DISTANCE OF MIGRATION: UNITED STATES, 1955-1960



THE SOCIAL-PSYCHOLOGICAL DIMENSIONS OF OCCUPATIONAL MOBILITY[1]

William P. Kuvlesky
Department of Agricultural Economics and Sociology
Texas A & M University

INTRODUCTION

As all of you are aware, social scientists representing a variety of disciplines and public leaders at all levels are focusing an increasing amount of attention on the motivational and orientation factors involved in occupational mobility.[2] This interest has largely been generated as a result of widespread recognition that our society is experiencing structural problems in articulating the labor supply with changing occupational requirements. The situation is such that in many cases, individuals desire a type of employment in demand in the society but cannot obtain the requisite attributes required for these positions. At the same time, those persons aspiring to farming or low skilled jobs find fewer of these positions available as the processes of industrialization, mechanization, and the use of cybernetics increasingly diminishes opportunities for these types of work. These problems show no likelihood of easy or early solution.

Why is the occupational placement process receiving so much attention? The major importance of occupational placement can be viewed from at least two interrelated perspectives: (1) the needs of society in filling required positions in such a way that the system will operate efficiently, and (2) the needs of the individual trying to find a place in the occupational structure that will help him satisfy his felt needs.

A basic requisite of any society is that positions necessary to its continued existence be filled by individuals who can perform the obligations of these positions effectively. In addition, in our society there seems to be a widely shared premise that we should always utilize human talent and skills to the uppermost possible limits. This utilization should be of particularly crucial concern presently. The strains on the resources of our society are great and probably will continue for some time. As a result it is of great importance that we use as efficiently as possible the resources we have, and not the least important of these is human ability and talent.

---

[1] The author would like to recognize the contribution of Dr. Robert C. Bealer, Department of Agricultural Economics and Rural Sociology, The Pennsylvania State University, who has collaborated with me on several previous efforts utilized in developing this paper.

[2] For a relatively complete and current listing of such research efforts see William F. Kuvlesky and George W. Ohlendorf, A Bibliography of Literature on Occupational Aspirations and Expectations, College Station: Texas A&M University, Department of Agricultural Economics and Sociology, Departmental Information Report 65-3 (August, 1965).

For the individual, an occupation is one of the most important social identities. Not only does the job one holds have direct significance for social prestige, but it also consumes a major portion of a person's daily life. In addition the job a person has determines to a large extent other facets of his life -- his kinds of associations with others, income, security, style of life, and even one's family's crucial life changes.[4]

A particularly vital area of consequence of occupational placement is the general satisfaction an individual has with his life. If a person aims at a particular type of job but does not attain it, he will very likely feel some degree of deprivation, depending on the intensity of his desire and the magnitude of his deflection. In our society many children are led to believe that their achievements are limited only by their desires and efforts. This has a tendency to produce relatively high goals and expectations which are not necessarily compatible with existing opportunities or the capabilities of the individual. The deprivation felt by the individuals who do not realize their occupational goals or expectations can have important consequences for their evaluation of society and for the manner in which they relate themselves to it. A widespread failure to meet

---

[3] This assertion is particularly cogent for a highly industrialized society. For a strong statement of this point of view see Eli Ginzberg, et al., Occupational Choice: An Approach to a General Theory, New York: Columbia University Press (1951), pp. 3-4.

[4] As A. O. Haller writes, "By now it is a sociological commonplace that a person's occupation exerts pervasive influence on his life." The Occupational Aspiration Scale: Theory, Structure and Correlates, East Lansing: Michigan Agricultural Experiment Station Technical Bulletin No. 288 (1963). For supporting evidence see among others Joseph A. Kahl, The American Class Structure, New York: Rinehart and Company, Inc. (1953), Chapter 4, and Lipset and Bendix, Social Mobility in Industrial Society, Berkeley and Los Angeles: University of California Press (1962), p. 97 and p. 228.

the internalized needs and expectations of individuals making up a society, or a part of society, could lead to sharp intrasocietal conflict and possible drastic changes in the form of the society, a condition not widely sanctioned by most citizens.[5]

The process whereby individuals are differentially placed in the occupational structure of our society is in an extremely complex one. A host of factors normally interact to determine the final outcome. These include the characteristics of the individual, his network of social relations, the structure of the society and its dynamic properties, individual perception of all these things, and in turn the influence of such perceptions upon the values, attitudes, aspirations, and plans regarding the future occupational role and other social commitments that will influence the person's ability to reach the occupational goal he has selected.

According to Archie Haller in a recent publication, "We do not have a valid theory to explain and predict exactly what occupation a person will enter; we may never have."[6] I am not nearly as pessimistic about the potential for the development of such a theory as Haller; however, I do believe that the emergence of such a theory is dependent on our willingness to reach beyond the boundaries of our own particular disciplines and join in cooperative efforts with others. Although my own presentation is rather narrowly restricted to social-psychological considerations, it is my hope that it will make some contribution toward this end.

Objectives

The broad purpose of this paper is to develop the outline of a conceptual scheme that includes the major social-psychological parameters impinging upon the occupational placement process. In the process I intend to point up problems of theory and measurement that might be useful in directing and formulating subsequent research. These aims will be pursued through an examination of past work, both conceptual and empirical.

---

[5] For an explication of this idea note Robert K. Merton, Social Theory and Social Structure, Second Edition, Glencoe, Ill.: The Free Press (1957), Chapter 4.

[6] A. O. Haller and I. W. Miller

To a large extent this paper will consist of an attempt to integrate several of my previous efforts on particular aspects of this overall problem.[7]

The reason that I have chosen to focus attention on conceptualization is not because there are no problems of theory and measurement deserving consideration but because it is my judgment that these problems evolve from our sorry lack of effort to clearly and logically formulate the ideas involved in our theories and which represent the starting points for our measurements. Anyone who has tried to wade through the abundant literature evolving from a number of different disciplines in this problem area should be well aware of the conceptual and terminological confusion prevailing. Inconsistencies in labeling and measuring a vast array of relatively unstructured ideas--occupational choice, aspirations, plans, expectations, vocational preferences, job values, goals, achievement motive, level of ambition, goal deflection, relative deprivation, and others--have hampered such desired ends as interdisciplinary cooperation, codification and integration of findings, and the development of sound and valid theoretical statements. Yet, we have a tendency to continue to ignore each other's work, within our own disciplines to say nothing of between them, to spend more time in making more and more observations of larger and larger samples, to hold fast to our favorite instruments and techniques, and to all but ignore the prerequisite essential tasks of conceptual clarification and synthesis of our findings. It is my hope that this paper will stimulate you to seriously consider these often neglected basic needs.

Occupational Orientations

From a social-psychological perspective, which underlies this paper, a minimal conception distinction is suggested between the individual's orientation toward future work statuses and all those factors in the person's situation which condition attainment but are not subsumable as occupational orientations. Among others I would place here such diverse things as the composition of the labor force, the nature of technological development, the level of economic production, quality and quantity of educational programs, restrictive covenants of labor unions, inherited physical disabilities, race, age, sex, etc. It is obvious that such a model needs further differentiation.

---

[7] See in particular Kuvlesky and Bealer, "A Clarification of the Concept 'Occupational Choice,'" Paper read at the Rural Sociological Society meetings (August, 1964), Quebec, Canada, and Kuvlesky, "Occupational Aspirations and Subsequent Behavior: A Longitudinal Study of Young Adults," Paper read at the SW Sociological Association meetings (April, 1966), New Orleans, Louisiana.

Social scientists have taken an extensive interest in studying the occupational orientations of youth for a number of years. Unfortunately, very little work has been done in reference to the occupational orientations of adults. This paper, of necessity, will have to rely primarily on evidence from research pertaining to youth orientation. However, at a later point in the paper a brief attempt will be made to theorize about the evolutionary development of occupational orientations through adulthood and the active work life of individuals.

My specific objectives at this point will be to differentiate conceptually a number of interrelated but qualitatively different ideas that have generally been subsumed under the titles of "occupational aspiration" or "occupational choice." I intend first of all to distinguish between two major areas of orientation. One I choose to call status orientations; the other I label job preference. In reference to status orientation I will further differentiate two subtypes--aspirations and expectations. These then will be broken down into their constituent analytical elements. In addition, I will briefly consider the dynamics involved in the evolutionary development of these particular orientations and the nature of their interrelationships.

Occupational orientations are defined here to mean an individual's or group of individuals' orientations toward future work statuses and roles. Past research has emphasized the status dimensions of orientations and with some justification. In an achievement oriented society those aspects which lend themselves to simple evaluation of relative attainment are characteristically made of central importance by the actors themselves. Those orientations that have as their object the status or rank dimension of occupation I will refer to as status orientations. Research findings have indicated that people do have desires for certain work conditions and job characteristics (i.e., "work with people" or to "be my own boss") that are not in a direct sense relevant to status evaluation in a hierarchal manner.[8] These nonstatus orientations I have labeled job preferences. Because the status orientations by far represent the bulk of past research interests and are of more interest to me, I will focus on conceptual specification of these. However, job preferences are in need of similar specification and should not be ignored, particularly in research attempting to explain placement in specific job roles.

Status Orientations[9]

A person is generally oriented toward placement in a number of different social structures that have status significance (i.e., occupation, education, place of residence, marriage-family, politics, income, etc.). These can be referred to as status-areas and the orientations toward future placement in them as status orientations. Occupational status orientations represent a specific form of this more general class of phenomena. There are two major types of status orientations: (1) aspiration (preferred identity) and (2) expectation (anticipated identity). I will first focus on the idea of occupational aspirations--specifying its precise meaning and offering some suggestions about minimal analytical distinctions that seem necessary to adequately research it. I will then differentiate aspiration from the related but qualitatively different idea of expectation and indicate why such a distinction is necessary.

Occupational Aspirations

All too often in the writing about the research on the field, occupational aspiration is not even defined and/or the stimulus question(s) used to elicit responses is unreported. For example, Kahl, in a widely quoted article, "Educational and Occupational Aspirations of 'Common Man' Boys," never indicated the nature of the instrument used to obtain this information; and, similarly, E. Grant Youmans, in reporting a Michigan study, used the term "occupational aspiration" but never defined it or gave a clue to the nature of his relevant indicator.[10] This type of difficulty is compounded by most researchers' failure to realize the several dimensions involved in the concept. Or, even worse, the same or very similar terminology is used when referring to different analytical elements. Thus, for instance, occupational aspiration is sometimes defined as the work role an individual wants or would like to have,[11] and at other times it is defined as the occupation the individual expects or is resigned to attaining.[12] Some ordering of the sociologist's tools is obviously called for.

---

[8] See, for instance, John B. Edlefsen and Martin Jay Crowe, Teenagers' Occupational Aspirations, Pullman: Washington Agricultural Experiment Station Bulletin 618 (1960). Often what I am here labeling job preferences are referred to as job values or simply values.

[9] Much of this section was originally developed and more fully stated in Kuvlesky and Bealer, op. cit.

The idea of aspiration is at least more involved than most of the extant research has recognized. An aspiration usually refers to a person's, or grouping of persons', orientation toward a goal. In this sense, aspiration is a special form of the concept attitude, which is generally defined as a predisposition to behave towards a social object in a particular way - an orientation toward a social object. The distinction between the two concepts is that the object involved in an aspiration is a goal and therefore is more or less desired by individuals; whereas, an attitude may be positively or negatively directed.[13]

---

[10] E. Grant Youmans, "Occupational Expectations of Twelfth Grade Michigan Boys," Journal of Experimental Education, 24 (June, 1956), pp. 259-271; and Joseph A. Kahl, "Educational and Occupational Aspirations of 'Common Man' Boys," Harvard Educational Review, 23 (Summer, 1953), pp. 186-203.

[11] Harry K. Schwarzweller, "Values and Occupational Choice," Social Forces, 39 (December, 1960), p. 20 (Italics added). For other researchers using a similar stimulus question, see the following: R. M. Stephenson, "Realism of Vocational Choice: A Critique and an Example," Personnel and Guidance Journal, 35 (April, 1957), pp. 482-488; John B. Edlefsen and Martin Jay Crowe, Teenagers' Occupational Aspirations, Pullman: Washington Agricultural Experiment Station Bulletin 618 (1960). Cowhig, et al., Orientation Toward Occupation and Residence, Michigan Agricultural Experiment Station Special Bulletin 428 (1960) and R. J. Porter, "Predicting Vocational Plans of High School Senior Boys," Personnel and Guidance Journal, 33 (December, 1954).

[12] Russell Middleton and Charles M. Grigg, "Rural-Urban Differences in Aspirations," Rural Sociology, 24 (December, 1959), p. 365 (Italics added). For examples of other cases where a stimulus question eliciting expectations or "plans" as indicators for aspiration see among others, Lee G. Burchinal, "Difference in Educational and Occupational Aspirations of Farm, Smalltown and City Boys," Rural Sociology, 26 (June, 1961), pp. 107-121; and William H. Sewell, Archie O. Haller and Murray A. Straus, "Social Status and Educational and Occupational Aspiration," American Sociological Review, 22 (February, 1957), pp. 67-73. For a scale indicator of the concept including items representing both dimensions see Haller and Miller, op. cit.

The concept aspiration can be broken down into three analytical elements (1) a person or persons, (2) wanting (orientation), (3) a social object (goal). Each of these elements is variable. Both the goal and orientation elements can vary internally and, what is more, can vary independently of each other.

The Goal Element

Goals which can vary in kind are usually described in reference to a particular social status or status-attribute (occupation, income, education, residence, etc.). These kinds of statuses will be referred to as goal-areas.

A person generally is oriented toward a number of goal-areas at one time--he desires an occupation, a residence, an education, an income, and many other social objects. Furthermore, he characteristically desires a particular type of occupation, a specifiable range of income, a certain level of education, etc. These goals may or may not be perceived as directly interrelated by the individual and consequently his goal-specifications may or may not be logically consistent from the perspective of the observer. However, because the individual does visualize himself in future statuses, he can and does have relatively specific aspirations for each goal-area. In reference to occupation, evidence exists that adolescents can indicate relatively specific goals.[14] Thus, we can classify aspirations on the basis of goal-areas and differentiate within the goal-areas on qualitatively or quantitatively different choices.[15] A range of potential achievement can be determined for each goal-area, arbitrary limits drawn, and evaluation made about the relative level of aspirations. Thus, we can speak of a person's goal as being high or low depending upon where his desired choice falls on a range of potential achievement. For instance, one can note a difference between a desire to become a doctor as compared to a desire to become a policeman, or a machinist, or a farmer, or some other less prestigeful occupation.

---

[13] This is the definition essentially given by Haller and Miller - "the term indicates that one or more persons are oriented toward a goal," op. cit., p. 7. For a description of the introduction and development of the concept of aspiration see: Morton Deutsch, "Field Theory in Social Psychology," In Gardner Lindzey (ed.), Handbook of Social Psychology, Cambridge, Mass.: Addison-Wesley Publishing Company, Inc. (1954), pp. 181-222; and John W. Gardner, "The Use of the Term Level of Aspiration," Psychological Review, 47 (January, 1940), pp. 59-68.

[14] Stephenson, op. cit.; Lawrence Drabick, The Vocational Agriculture Student and His Peers, Raleigh: North Carolina State University, Departments of Agricultural Education and Rural Sociology (1963), (mimeographed); Haller and Miller, op. cit., p. 71

The Orientation Element

The orientation element as analytically distinguished from the goal-specification also varies. Given a goal-area, and regardless of alternatives within the area specified, a person can have a variable amount of desire (more or less) for it.[16] For instance, the person desiring to become a policeman may be willing to sacrifice anything or to defer his other goals to achieve this level of occupation, while the person who desires to become a doctor might not be willing to give up anything for it. Thus we can speak of a person having _strong_ or _weak_ aspirations, depending on the intensity of his desire to achieve his goal-specification and regardless of whether the goal-specification itself is ranked as _high_ or _low_.

The orientation element is an important consideration in studying aspirations because, as mentioned previously, an individual has a number of goals. An estimation of the strength or weakness of his orientation toward each gives us an indication of his valuation of different goals and which ones he is likely to put before others. _It is not enough to know whether the goal is high or low in terms of an evaluation of difficulty of attainment_, it must also be known how strongly the goal is desired relative to others if a thorough explanation and a high level of prediction is to be obtained.

---

[15] See, respectively, Cecil C. North and Paul K. Hatt, "Jobs and Occupations: A Popular Evaluation," _Opinion News_ (September, 1947), p. 343; _Sixteenth Census of the United States, 1940, Population Comparative Statistics for the United States, 1876-1940_, Washington, D. C.: Government Printing Office (1943). For detailed and thorough discussion of the use of various types of indicators see: Haller and Miller, _op. cit._, pp. 17-28.

[16] The use of the term "orientation" here has a different meaning from that given by Haller and Miller, who use it in reference to variability associated with several aspects of what they call the goal element, _op. cit._, pp. 7-8. As is true of other researchers, they do not consider the intensity of identification of the magnitude of desire (what we refer to as the orientation element) in their development.

Everything else being equal, it is logical to expect that of two individuals having identical goal-specifications but different strength orientations, the individual having the strongest desire is more likely to attain his goal than is the individual having less desire. Unfortunately, we do not know if this is true for most studies dealing with aspirations focus only on the goal elements.[17] The total neglect of the strength of occupational aspirations may go a long way in explaining the poor ability of current aspiration indicators for predicting attainment.

Several investigators have examined the orientation aspect of aspiration in limited problem contexts. Fliegel, for instance, found that the strength of the orientation toward income as a goal-area (economic aspirations) for farmers in a Pennsylvania county was negatively related to their willingness to remain in farming as an occupation.[18] As far as I am aware, however, the goal and orientation elements of occupational aspirations have not been investigated simultaneously. It would seem to me that efforts to measure the intensity of orientation factor in subsequent research and use it in conjunction with measures of the goal-specification element should lead to more useful results.

Aspirations Differentiated from Expectations

Another consideration that needs attention is the necessity to distinguish between aspirations and expectations.[19] What is referred to by the term expectation is the individual's estimation of his probable attainment in reference to a particular goal-area -- what level of occupation he expects to attain.[20] It seems prudent that aspirations and expectations be analytically distinguished. Expectations should not be equated with aspirations, for the object involved with an expectation need not be desired and, therefore, need not be a goal. The object involved with an expectation is an anticipated occurrence and the individual's orientation toward this expected state may be favorable or unfavorable.

---

[17] See, for example, any of the studies citied up to this point.

[18] Frederick C. Fliegel, "Aspirations of Low-Income Farmers and Their Performance and Potential for Change," Rural Sociology, 24 (September, 1959), pp. 205-214. For similar efforts see Russell A. Dynes, et al., "Level of Occupational Aspirations: Some Aspects of Family Experience As a Variable," American Sociological Review, 21 (April, 1956), pp. 212-215 and Leonard Reissman, "Levels of Aspiration and Social Class," American Sociological Review, 18 (June, 1953), pp. 233-242.

[19] A particularly strong argument for the need to separate the ideas of aspiration and expectation is presented by Stephenson, op. cit., p. 83. The distinction is also clearly made by Peter Blau and his associates in their article, "Occupational Choice: A Conceptual Framework," Industrial and Labor Relations Review, 9 (July, 1956), pp. 535-536. In a more recent work, Kirk Dansereau also gives strong support to this need, "Work and the Teen-Age Blue-Collariet," in Shostak and Gomberg (eds.), Blue-Collar World: Studies of the American Worker, Englewood Cliffs, New Jersey: Prentice-Hall, Inc. (1964), pp. 184-185.

There is empirical evidence from recent studies to indicate that adolescent repondents distinguish aspirations from expectations, and this evidence further shows that there can be, and frequently is, an important qualitative difference between what a person wants and what he expects to get in relation to occupations.[21] The available evidence also indicates that expectations are to a much greater extent comparable to existing occupational opportunities than are aspirations.[22] Conversely, expectations need not always be "lower" than aspirations. The case of a businessman's son wishing to become a truck driver but reconciling himself to "taking over the store" is just one example where "expectations" may exceed aspirations.

Since there can be an important empirical difference between aspiration and expectation, it seems logical that these two phenomena should be conceptually distinguished and care taken that appropriate indicators of each are used.

In this regard, part of the recent work of Haller and Miller can be briefly reviewed for further insights. Their effort to clarify the idea of "occupational aspiration" culminated in a scale to index the phenomenon. In that endeavor they coined the term, "expression levels."[23] By this they mean the range of a goal-area within which a person's goal-specification falls may include a range of particular alternatives, rather than being a single point in a distribution of possible alternatives. Recognition of this fact certainly seems reasonable and of value. However, when they go on to imply that the limits of this range can be determined by eliciting from the respondent what job he would like to have ("idealistic limit") and what job he expects to have ("realistic limit"), it is not certain that this is the most apt choice. While an individual may well have a range of goal-specifications, that range need not be disclosed by simply asking what he desires (or likes, or wants) on one hand and what he expects on the other, for each of these aspects can have a range of its own. Logically, then, aspirations and expectations are two distinct and separate aspects even though they are related, and a consideration of their interaction is an important area of study.

---

[20] The term "plan" is sometimes used in the literature to refer to what we call expectations. Cf. Cowhig, *et al.*, *op. cit.*, p. 25 and Donald R. Kaldor, *et al.*, *Occupational Plans of Iowa Farm Boys*, Ames: Iowa Agricultural Experiment Station Research Bulletin 508 (1962), p. 623.

[21] Cf. Stephenson, *op. cit.*; Drabick, *op. cit.*; Cowhig, *et al.*, *op. cit.*; Richard M. Stephenson, "Mobility Orientation and Stratification of 1,000 Ninth Graders," *American Sociological Review*, 22 (April, 1957), pp. 204-212; and M. E. John and Kathleen Moyer, *Adolescents: Their Interests, Aspirations, and Models*, University Park: Pennsylvania Agricultural Experiment Station Bulletin 695 (1962), pp. 6-8.

[22] All of the evidence referred to in footnote 24 supports this contention.

[23] Haller and Miller, *op. cit.*, Table 2, p. 60. Also see pp. 8-9.

Although in some cases occupational aspirations and expectations may be congruent, in many cases they are probably not, especially in reference to adolescents. The person's expectations may be totally unrealistic from the perspective of the outside observer. Whatever the case, establishing the extent to which aspirations and expectations are congruent or not, identifying variables that influence or determine the nature of their relationship, and pin-pointing the consequences of differential relationships between them, all become significant areas of study. It would seem reasonable to expect that aspirations and expectations are related to occupational attainment in different ways.

In addition, it might be fruitful in consequent research to treat the relative difference between the goal-specifications of aspirations and the anticipated status-level of expectation as conceptually distinct phenomena - anticipatory goal deflection. It may be that this relationship has some causal bearing on felt deprivation, psychological and social satisfactions, self-image and perhaps directly or indirectly on social interaction.

Obviously, in this effort I have focused on the object element of expectations - the anticipated status. The orientation element, usually conceptualized as "degree of certainty" should be mentioned - particularly in reference to the possible significance it may have for triggering anticipatory socialization in reference to expected work roles.

Previously it was suggested that aspirations and expectations might be related to subsequent attainments in different ways. Since our primary focus in this seminar is occupational mobility, it would seem appropriate to consider the nature and extent of the relationship existing between status orientations and subsequent attainment. However, I would first like to briefly point out several further specifications of our model which should prove useful.

Subdimensions of Status Orientations

In attempting to clarify and add to the precision of the conceptualization of occupational aspirations and expectations, I have focused thus far almost entirely on the two major elements of orientation (i.e., desire and certainty) and the social object (i.e., goal-specification and status anticipated). Several, almost entirely unexplored, subdimensions of these elements should be given attention in subsequent research. One of these, the amount of time involved in the status projection, is related to the orientation element. The other refers to the degree of specificity in indicating the status object of the orientation.

The temporal dimension has sometimes been introduced, often unconsciously, into instruments used to measure occupational status orientations. Haller and Miller indicate that the purpose of stating a time limit, particularly in terms of research, is to control on any variability that might occur in the respondents' interpretation of the stimulus question - to be sure that all respondents are oriented toward the same "goal period."[24]

It is my hypothesis that the temporal dimension is more appropriate for expectations than for aspirations, especially if aspiration is conceived of in terms of ultimate goal status. While it seems logical to anticipate that a person's expectation of attainment may well be influenced by the amount of time specified, it seems less safe, in my judgment, that a similar consideration is going to alter an individual's conception of his ultimate goals. The use of "short-run goal-periods" in conjunction with a stimulus question or instrument designed to elicit occupational goals asks the respondent to indicate what job he wishes to attain by a certain time ("when your schooling is over") or at a particular age (say 25). This probably leads the respondent to consciously evaluate his possible achievement under the stipulated condition. As a result his response might indicate one of several very different things - an ultimate goal, a subgoal, or an anticipated status. If this proposition is true, such an instrument would produce responses that would be difficult to interpret unambiguously.

---

[24] For a good discussion of the temporal dimension of occupational status orientations see Haller and Miller, op. cit., pp. 8-9 and pp. 60-61.

My supposition that the temporal consideration is more relevant to a consideration of expectations than to aspirations is, of course, an empirically testable proposition. To my knowledge it remains untested. At any rate it appears to be obvious that in developing instruments to tap status orientations in future studies we should give close attention to the temporal dimension we incorporate.

I have not explored the possibilities of variation involved with degree of specificity indicated in the status objects of status orientations; however, it seems clear to me that this dimension of variability is equally applicable to both aspirations and expectations. Although I have not attempted to operationalize this analytical element, my experience in observing raw responses to stimulus questions eliciting occupational goals and anticipated statuses leads me to believe there is considerable empirical variability existing along this dimension. As to the significance of this factor, Burchinal suggests that at least aspirations tend to become more specific as the individual "crystallizes" his occupational "choice."[25] If this proposition is valid, a measure of specificity of status orientations may provide an indicator for "vocational maturity." Particularly in reference to expectations, this additional specification might be useful in predicting whether or not or to what extent anticipatory socialization will occur in reference to particular types of jobs.

Occupational Status Orientations and Subsequent Attainment[26]

As has been indicated previously a great deal of research effort has been expended on the study of occupational aspirations of youth in recent years and the volume of such efforts continues to increase. Most of this research consists of attempts to discover what variables influence the development of differential levels of occupational goals and/or expected job attainment. While diverse, these efforts have characteristically evolved from the assumption, often unstated, that status orientations, particularly aspirations, of youth are crucial or, at least, important determinants of subsequent adult status attainments.[27] However, the nature and extent of the relationship between orientations and attainments remains relatively unexplored.

---

[25] Lee G. Burchinal,"Career Choices of Rural Youth in a Changing Society," Minn.: Minnesota Agricultural Experiment Station, N.C.R.P. 142 (1962), p. 6.

[26] This section of the paper is a modified and abstracted version of Kuvlesky, "Occupational Aspirations and Subsequent Attainment," op. cit.

In most theoretical efforts concerned with the development of "occupational choice" (i.e., the process of occupational placement or occupational attainment) the idea that occupational aspirations play an important directional role is given prominence.[28] While existing models do exclude the possibility of aspirations being epiphenomena, they leave open the question of to just what extent occupational status orientations influence job attainment. What do prior empirical studies tell us about this relationship?

To the best of the author's knowledge there have been only five reported studies that have explored, through the use of necessary longitudinal data, the relationship between adolescents' occupational status orientations (i.e., aspirations and expectations) and their subsequent attainments. Two of these studies were done more than twenty years ago and suffer a number of faults that seriously limit their utility and consequently, these will not be examined in detail. We can note, however, that they reported "no significant relationship" and a weak, positive correlation between aspirations and attainments.[29]

---

[27] For an example of a statement of this assumption, see Burchinal, *op. cit.*

[28] Examples of such theoretical and conceptual efforts include Haller and Miller, *op. cit.*; Burchinal, *op. cit.*; Blau, *et al.*, *op. cit.*; Eli Ginzberg, *et al.*, *Occupational Choice: An Approach to a General Theory*, New York: Columbia University Press (1951); and D. V. Tiedeman, *op. cit.*

[29] See Edward Humphrey Worthington, *Vocational and Educational Choices of High School Pupils*, Philadelphia: University of Pennsylvania Press (1938) and C. S. Anderson, *Young Men Ten Years After Leaving Pennsylvania Rural Schools*, University Park: The Pennsylvania State University, Agricultural Experiment Station Bulletin 468 (1944).

Of the three more recent efforts, one by R. J. Porter in 1954 was explicitly concerned with the relationship of expectations to attainment within an extremely short time span - 6 months.[30] Porter reported that six months after graduation 79 percent of his respondents were "following the plan they had proposed or one on a comparable prestige level." While these findings demonstrate that certain youth may be able to predict their occupational status levels over a very short time span with a high degree of accuracy, they are not relevant for an assessment of the relationships existing between either ultimate aspirations or long-run expectations and subsequent long-run occupational attainment.

The only other relevant studies are Haller and Sewell's study of rural males in Jefferson County, Wisconsin, and my own study of originally rural males in Pennsylvania - both of these efforts claim to focus on the relation of adolescents' goal-specifications to subsequent attainment.[31]

In 1955 Haller restudied 431 male respondents who were first studied by Sewell in 1948 as juniors and seniors in high school. A measure of level of occupational aspiration was obtained through the initial interview and information about occupational attainment during the terminal contact. The index scores measuring level of aspiration were related to the prestige scores of 1955 occupations. A correlation coefficient of +.46 resulted and it was concluded that LOA "tends to predict behavior toward its object." Several criticisms can be raised against this study, particularly in reference to the indicator of level of aspiration used, which bring into question the validity of the correlation observed as an accurate measure of the degree of relationship between level of occupational aspiration and level of occupational attainment. The indicator of occupational aspiration (LOA) was an index of North-Hatt prestige scores assigned to four responses: (1) the highest prestige occupation respondents had ever considered; (2) the lowest prestige occupation they had ever considered; (3) the occupation they planned to enter; and (4) the occupation they would like to enter if they had perfect freedom of choice. The index does not appear to be unidimensional - it incorporates responses that represent different phenomena, thereby making it difficult to determine exactly what is being measured. The measure certainly ignores the distinction made previously between aspiration and expectation, since indicators of both are incorporated in the index.

---

[30] R. J. Porter, "Predicting Vocational Plans of High School Senior Boys," Personnel and Guidance Journal, 33 (December, 1954), pp. 215-218.

[31] The Sewell-Haller study is reported in Haller and Miller, op. cit., pp. 34-35 and 37-38. My study has not been published and is reported in my Ph.D. dissertation, The Non-Attainment of Adolescents' Occupational Aspirations, University Park: The Pennsylvania State University (1965).

But, even accepting the reported correlation at face value one has to conclude that only a moderate positive relation existed between level of goal-specification and level of subsequent job attainment for this Wisconsin sample.

It was the desire for a more detailed understanding of the extent and nature of the relationship between occupational goals and subsequent attainment that precipitated my study in Pennsylvania. The data were obtained from a representative panel of Pennsylvania rural, male high school sophomores first contacted in 1947 and recontacted approximately ten years later. In the 1947 questionnaire aspiration was sought by asking simply "What occupation would you like to follow?"[32] The responses to this question and a stimulus question indicating 1957 attainment were classified according to a modified Alba Edwards scheme.

The findings of this analysis indicated that adolescent aspirations were related to subsequent occupational attainments in a positive manner; however, the association was never overwhelmingly strong and varied considerably by type of aspiration. This finding should not be interpreted to mean that aspirations had no directional influence on attainment. Rather, it suggests that the path from desire to realization is characteristically beset by many intervening factors which in some instances may push attainment beyond one's initial aspirations or, what appears to occur more often, curtail it. Unfortunately, my data did not permit a thorough examination of this matter. However, some further insights were gleaned from a closer examination of the data. It was observed that proportional rate of attaining unskilled jobs decreased consistently with the decrease in the relative prestige value of the original goal. A converse trend was observed in reference to the attainment of professional jobs. These two observations would seem to indicate that adolescent goal-levels do influence at least extreme levels of attainment. In addition, it was discovered that those persons aspiring to particular occupations attained that type of job with greater frequency than those having other goal-specifications. For instance, even though the managerial aspirants had a very low rate of goal fulfillment, 10 percent, they attained managerial jobs at more than twice the proportional rate of the total sample. An even more dramatic instance is observed in reference to the differential attainment of farming - a ratio of more than 3 to 1 between aspirants to farming and the total sample. Therefore, it can be said that an aspiration for a particular occupational status did tend to increase the probability of attaining that status, even though it was not generally a good predictor of attainment.

---

[32] It should be noted that the question used is not viewed as an "ideal" stimulus for several reasons: (1) there may well have been some mixing of expectations and aspirations in answers to the question; and (2) the respondents could have been oriented toward differing goal-periods. However, we presumed that the use of "would" conveyed enough indefinite futureness and "like" a personal preference connotation to generally elicit responses indicating ultimate aspirations.

Over-all, it can be concluded that evidence from prior studies suggest a weak to moderate positive association between occupational aspirations and subsequent behavior.

One implication immediately suggested by this line of evidence is that aspirations do not seem to be a good predictive device for long-run occupational attainments. However, some caution is called for in making this statement. It is entirely possible that with the development of more sensitive and efficient indicators a greater association might be found to exist between aspirations and attainment. Also, it should be noted that a longitudinal record of occupational aspirations through adulthood might show a patterned change in aspirations that would increase the positive nature of their association to attainment. Similarly, extending the period of time in which attainment is measured might also produce an increase in the relationship. Under even the best of circumstances, however, it seems reasonable to question the wisdom of attempting to develop a predictive device for occupational attainment that utilized only goal-specification.

Whatever the intensity of relationships between aspirations and attainment that might be demonstrated through possible refinements, the fact of correlation, and in turn predictive quality, does not establish any necessary causal linkage between aspiration and attainment.

Whatever causal significance aspirations have for attainment, studying the nature of deflection from goals still seems a reasonable action. To have aspirations go unmet is to invite frustration and feelings of deprivation. My own data indicated a marked positive association between deflection from occupational aspirations to undesired subsequent attainments and degree of negative self-evaluation. It is to questions of this order that the apparently unabated interest in the study of aspirations may yield the greatest insight.

We can conclude that almost nothing is known empirically about the nature or extent of the relationship of occupational expectations to long-run occupational status attainment. It would seem logical to propose that expectations could demonstrate a higher order positive relationship to attainment than goal-specifications. Furthermore, it would seem reasonable to propose that if there is a difference between the status levels involved, expectations are more likely to trigger anticipatory socialization for a future job than aspirations. Likewise, one could speculate that the felt deprivation evolving as a result of unmet expectations might be even greater than that which would evolve as a result of failure to attain goal-specifications. Obviously a great deal of research could be directed toward these types of questions.

Longitudinal Development of Occupational Orientations

With the exception of several fine theoretical efforts by Tiedeman, Super, and Blau, few researchers have conceptualized interdependent and simultaneous development of the occupational placement process and occupational orientations for individuals.[33] This idea needs to be considered, particularly in reference to the marked need for a better understanding of the intragenerational job mobility of adults. As has been mentioned before, very little empirical research has been done on the occupational orientations of adults. As a result most of this section of the paper will be theoretical and speculative in nature.

I will not attempt to develop a complete paradigm outlining the major factors involved in the differential development of either occupational orientations or occupational placement - this would constitute a separate major effort. Rather, an attempt will be made to lay down some descriptive ideas about how the occupational orientations of individuals relate to different stages of occupational placement.

---

[33] Tiedeman, op. cit. and Blau, et. al., op. cit., and Donald E. Super, The Psychology of Careers, New York: Harper and Row, Publishers (1957).

The occupational placement process is almost universally assumed to be evolutionary. A number of models have been developed to describe its phases of development, but most of these models focus on formation of occupational orientations prior to full-time entrance into the labor market. I think it is fruitful to conceive of the occupationally relevant life span of an individual as consisting of three broad stages - (1) Pre-Work Stage, (2) Full-Work Stage, and (3) Post-Work Stage. These categories roughly correspond to the general and significant age status categories of child-adolescent, adult, and old age respectively.

In the pre-work phase our primary concern is with the development and maturation of occupational orientations rather than with actual work behavior. It is generally accepted that the formation of these orientations are patterned and can be thought of as proceeding through a number of developmental stages. There appear to be at least three broad phases - (1) Fantasy, (2) Tentative, (3) Pre-Trial decision.[34] Normally the occupational orientations of the individual are represented as becoming more specific, realistic, and stable as he moves from fantasy orientation to the actual point in time when he must face a decision in reference to taking a full-time occupational role. This is implicit in the commonly used idea of "crystallization of occupational choice."[35] We know from past research that the occupational goals of youth in early adolescence are high relative to opportunities in the occupational structure and there is some evidence to indicate that the general goal-level decreases through adolescence - bringing goals more in line with expectations. It seems a logical hypothesis to me that with increasing maturity youth will tend to attain a greater degree of rational integration between their aspirations and expectations on one hand and between these and job preferences on the other. Those who do not and cannot attain a relatively high level of logical integration among these elements of occupational orientation are likely to experience a high degree of frustration and, in all probability, will not undergo effective anticipatory socialization that would prepare them for a particular position in the occupational structure. These propositions are obviously worth researching.

---

[34] Burchinal, _op_. _cit_. and Ginzberg, _et al_., _op_. _cit_.

[35] Burchinal, _op_. _cit_., pp. 6-7.

Moving into the full-work stage of the placement process, I would expect that the trend toward rational integration of orientations would continue for most individuals. The direction that this integration takes, however, is likely to be strongly influenced by the individual's work experiences, particularly successes and failures in attempts at mobility. If we assume that both occupational orientations and occupational attainments are relatively dynamic phenomena, it seems probable that a reciprocal interdependency exists between them. While the orientations provide motivations and the triggering mechanisms for anticipatory socialization which affect job attainments, the job influences causative factors (i.e., reference groups, role models, self-images, perception of opportunity, etc.) that in turn have some influence on the occupational orientations.

In all probability these dynamics do not operate at even rates through the full-work stage. If we posit three sub-stages - (1) Trial, (2) Vertically Mobile, and (3) Stable - it may help to conceptualize relative rates of change in orientation. The trial period represents the normal fishing around undertaken by most young adults in attempting to find a job in a setting that they consider satisfying. In all probability occupational orientations are at their most dynamic state at this point and may change considerably and even dramatically. Once the individual has selected, if he does, the context of his occupation and the general nature of his work role, he enters into the second sub-stage posited above. The vertically mobile period represents the vast portion of an adult's work life and probably a stabilization of orientations. This stabilization is probably attained to the greatest degree late in the individual's work life but before he approaches retirement.

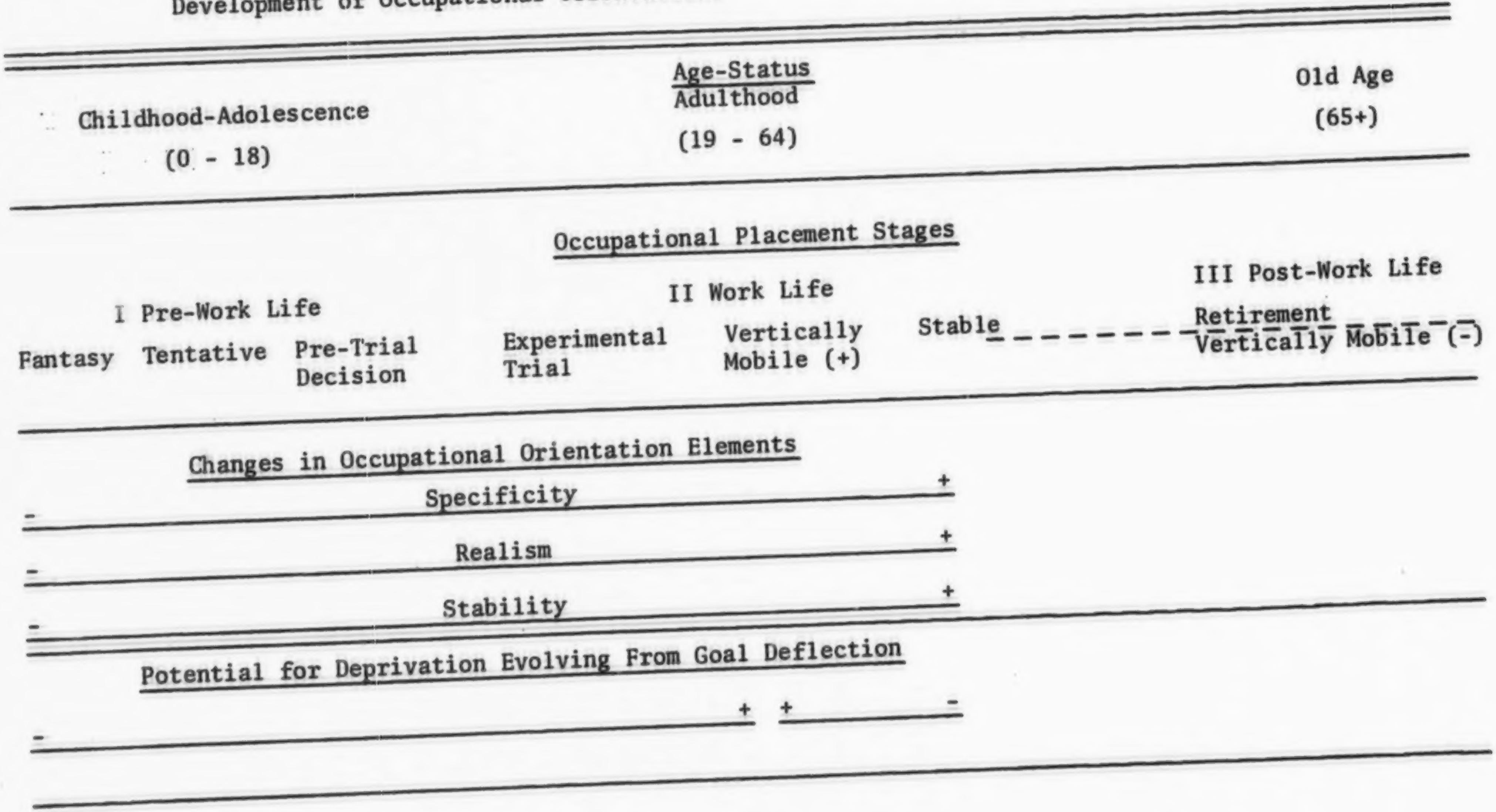
The final stage, the post-work phase, represents primarily a problem of detachment from full enactment of occupational roles- what we normally call retirement age. This post-work stage of life may well consist of several sub-stages not unlike the vertically mobile and trial periods of the full-work stage operating in reverse; however, to my knowledge little research has been spent on this aspect of man's occupational experience, and therefore, we can say little about occupational orientation phenomena associated with this stage.

I have summarized this final portion in Diagram 1 given at the end of the paper. It should be abundantly clear that much research is needed on the interaction existing between the process of occupational orientation formation and occupational mobility and the consequences of differentials in this relationship for the individual and his social behavior. In reference to the social-psychological aspects of occupational mobility, the problem area representing the greatest research need for the future is the study of the relationship existing between the occupational orientations and occupational mobility for adult members of our society.

Summary

In summation, I have attempted to introduce a measure of conceptual clarity into the social-psychological factors involved in occupational mobility. In many cases the ideas and their interconnections require further elaboration and there is a need to work out effective operational definitions and instruments to measure these adequately. There is an obvious need to start moving in the direction of integrating this partial model with those representing similar focuses in other substantive areas - particularly vocational education, labor economics, the sociology of stratification, and demography. In addition, there is a great need for all concerned with the study of occupational mobility to invest more time, effort, and resources in the longitudinal and experimental types of studies required for the development of causal explanations and a valid body of theory. Finally, the most important immediate task is to increase our efforts in logically ordering and specifying our conceptualizations and to move toward a snythesis of the empirical knowledge we already have at hand.

Diagram 1. A Longitudinal Model of the Occupational Placement Process and Its Interaction With the Development of Occupational Orientations



UNDERSTANDING SOCIAL MOBILITY

Selz C. Mayo, Head
Department of Sociology and Anthropology
North Carolina State University

INTRODUCTION

American society is undergirded by two very significant orientations which are either by now taken for granted or are overlooked. The first is the almost complete freedom of movement across geographic space. In most instances, political boundaries do not represent barriers to the movement. It is true that movement across such formal lines may set in motion other barriers such as the inability to participate in selected services in a given political subdivision or the inability to participate in certain citizenship processes for a specified period of time. Nevertheless, the fact remains that the individual, and the family, has a high degree of freedom of movement in geographic space.

The second important orientation, for our purposes, is that usually associated with the concept "climbing" through social space. It is assumed that each family translates this concept to their children in the form of aspirations for a better or higher life as symbolized by material possessions. The means utilized for such a purpose are usually occupation, education, and geographic movement. Hence, it is quite obvious that the movement across the landscape and movement in social space are highly related in our society.

In view of the overall purpose of this conference, these two orientations give rise to several basic concepts which will serve as guides for the remainder of this analysis. These fundamental ideas are discussed very briefly at this point, but they should become crystal clear as we move through this as well as subsequent sections of this seminar; and much of what has already taken place in the conference should begin to fall into perspective:

1. One major function of the educational establishment -- the school plant, and especially the public school system -- is to create an environment of relative equality within which to create as much inequality as possible for the individual student. In other words, we are attempting to maximize individual differences. This means in reality that we attempt to create an educational environment which will minimize background differences.

We attempt to create a situation of equality so as to enhance the potential of each student in the system. Individual differences must be given priority so that we may obtain the maximum differences in the potential of each individual.

2. Even in this seminar, in terms of what has already gone before, there appears to be a general acceptance of the major value orientation of "climbing." This is expressed in several ways: the family should teach children the societal system of climbing, a concern for the varying levels of aspiration in our society, a better opportunity to enhance individual differences, and so forth.

3. We have had and we now live in a stratified society. We have a class oriented society -- open or closed though it may be. And every one of our major institutions are oriented to the proposition of perpetuating the American system of stratification and all that goes with it.

4. The fourth basic concept that I want to deal with is that of life chances as it relates to stratification and upward mobility. The family places each child in social space; that is, in terms of a social class structure. The total life chances of each individual is related to life and living, to occupation and labor, to opportunity and potentiality, to housing and health, and to every other aspect of his total life; all of these factors are involved in the concept of life chances. Many of the major pieces of recent legislation are in reality efforts to enhance the life chances of many millions of individuals across the American landscape. Many of the educational programs are designed to make various individuals more equal as they enter into the school system. This could go on and on but the point is that life chances vary by social classes in American society.

5. There is and of necessity must be a battle and a struggle between national and societal aims and goals and the individual aims and goals. Migration is one of the processes for the movement of individuals into industries and occupations where they are so badly needed on the one hand. Yet, on the other hand, this move may or may not enchance the potentiality of the individual. Thus this battle goes on and on and it should in a democratic society. This battle often reaches a peak at the community level. A particular community, for example, may be contracting in terms of occupational opportunities, whereas many miles away there is an expansion of occupational opportunities. The local community, the local power structure,

is at battle with itself and with its people in terms of planning education programs in relation to migration. In many communities, resources must be allocated to the educational establishment in order to equip young people to enter the labor market in other communities.

Horizontal and Vertical Mobility

Horizontal mobility, as used here, refers to the movement of individuals and families and groups across the geographic landscape. This movement is from house to house, from county to county, from state to state, and on up the geographic ladder. In this connection there is a cliche which states that "Americans are probably the most mobile people in the world." The truth of this alleged statement need not bother us at the moment. Nevertheless, there is a very sizable proportion of the population which moves annually at least from one house to another.

In the year from March 1964 to March 1965 nearly 38 million Americans moved at least to the extent of from one house to another. This represents about 20 percent, or one fifth, of the total population. In demographic language we may designate those who move from one residence to another within the same county as movers and those who move across one or more political boundaries, such as counties or states, as migrants, as this is usually referred to in the study of migration. As indicated above, about 38 million Americans moved from one house to another in the period of one year, March 1964 to March 1965. About 25 million of these moved within the same county, and these are the movers. Nearly 13 million moved one or more times across at least a county line and these, of course, we call migrants. The latter has been given and will be given a great deal of attention in this conference; nevertheless, the former group, the movers, represent a very important part of our society for analysis.

As indicated in Table 1, approximately 20 percent, or one fifth, of all Americans move from one house to another at least once each year. There is very little difference between sexes as is indicated in Table 1, although males are slightly more mobile than are females. In terms of migration--that is, total migration--males appeared in that year to be somewhat more mobile than females.

TABLE 1 Mobility Status of the Population 1 Year Old and Over, United States, March 1964 to March 1965
(Numbers in thousands)

RACE AND SEX	TOTAL	NON-MOVERS (SAME HOUSE)	MOVERS - (DIFFERENT HOUSE)		
			TOTAL	SAME COUNTY	DIFFERENT COUNTY
		Number			
Total	187,974	149,128	37,866	25,122	12,744
White	165,824	132,711	32,260	20,510	11,750
Nonwhite	22,150	16,417	5,609	4,613	996
Male	91,671	72,428	18,698	12,316	6,382
White	80,991	64,521	15,987	10,099	5,888
Nonwhite	10,681	7,908	2,756	2,217	539
Female	96,303	76,700	19,169	12,806	6,363
White	84,833	68,191	16,274	10,411	5,863
Nonwhite	11,469	8,509	2,897	2,396	501
		Percentage Distribution			
Total	100.0	79.3	20.1	13.4	6.8
White	100.0	80.0	19.5	12.4	7.1
Nonwhite	100.0	74.1	25.3	20.8	4.5
Male	100.0	79.0	20.4	13.4	7.0
White	100.0	79.7	19.7	12.5	7.3
Nonwhite	100.0	74.0	25.8	20.8	5.0
Female	100.0	79.6	19.9	13.3	6.6
White	100.0	80.4	19.2	12.3	6.9
Nonwhite	100.0	74.2	25.3	20.9	4.4

SOURCE: Current Population Reports, Population Characteristics, Series P-20, No. 150, United States Government Printing Office, Washington, District of Columbia, April 14, 1966.

Nonwhites, overall, are more mobile than the white population. However, a very high proportion of the movement among nonwhites is in terms of movers, whereas the percentage classified as migrants is much higher for the white population than is the case for the nonwhite. The percentage of white males who are classified as migrants as shown in Table 1 was 7.3 percent as compared with only 5.0 percent for nonwhites. Among females the corresponding figures were 6.9 percent for whites as compared with 4.4 percent for nonwhites.

Table 2 shows a very significant pattern. The farm population, across the nation, is much less mobile than the nonfarm population. For example, about 12 percent of the farm population was classified as moving (that is, living in a different house at the end of the year as compared with the beginning), whereas 20.7 percent of the nonfarm population was classified as moving. Also, as is shown in Table 2, the percentage of the farm population which lived in a different county at the end of the year as compared with the beginning was 3.7 as compared with 7.0 percent for the nonfarm population. Table 2 shows also that there is very little difference in the metropolitan versus nonmetropolitan rate of movement; however, there is some considerable difference in terms of migration patterns. As is shown in Table 2, 6.2 percent of the metropolitan population moved across one or more county lines as compared with 7.8 percent of the nonmetropolitan population.

TABLE 2 Percentage distribution of the population 1 year old and over by mobility status and residence, United States, March 1964 to March 1965

RESIDENCE	TOTAL	NON-MOVERS (SAME HOUSE)	MOVERS - (DIFFERENT HOUSE)		
			TOTAL	SAME COUNTY	DIFFERENT COUNTY
Farm	100.0	87.9	12.0	8.3	3.7
Nonfarm	100.0	78.7	20.7	13.7	7.0
Metropolitan	100.0	79.4	20.0	13.8	6.2
Nonmetropolitan	100.0	79.3	20.3	12.6	7.8

SOURCE: Current Population Reports, Population Characteristics, Series P-20, No. 150, United States Government Printing Office, Washington, District of Columbia, April 14, 1966.

There is also a very interesting and fascinating story to be found in Table 3. The rate of movement--or the proportion of those who move within a year--declines very sharply as age increases. For example, in the 18-to 24-year-old age group 52.5 percent moved at least one time in the year under consideration; however, the percentage declines very, very sharply to the point that only 3.2 percent of those 65 years of age and over moved. Also, the migration pattern is very striking in terms of the age of the population. Again, in the 18-to 24-year age group 21.5 percent were classified as migrants and the percentage declines very sharply to less than one percent in the 65 and over age category.

TABLE 3 Percentage distribution of Professional and Technical Workers by Mobility Status and Age, United States, March 1964 to March 1965

AGE	TOTAL	NON-MOVERS (SAME HOUSE)	MOVERS - (DIFFERENT HOUSE)		
			TOTAL	SAME COUNTY	DIFFERENT COUNTY
18-24	100.0	46.2	52.5	31.0	21.5
25-34	100.0	63.9	34.6	18.4	16.2
35-44	100.0	83.6	15.8	8.8	7.0
45-64	100.0	88.1	11.6	7.8	3.8
65 and over	100.0	96.8	3.2	2.3	0.9

SOURCE: Current Population Reports, Population Characteristics, Series P-20, No. 150, U. S. Government Printing Office, Washington, April 14, 1966.

In a recent study there was a search for the causes of lower Negro geographic mobility; that is, migration. A few statements from this study are of significance to this analysis:

> Negro and white family heads were compared with respect to age, occupation, education, and type of place of residence--the four demographic factors known to account for a large part of the difference in mobility among individuals. On the first count--age distribution--white and Negro family heads were found to resemble each other closely. On the basis of this finding it was concluded that the observed racial differences in mobility appear to have nothing to do with the factor of age.
>
> When education and occupation were considered, however, extensive differences were found between white and Negro

family heads. Data for the population as a whole indicate that a person with a college education is at least three times as likely to have moved in the past 5 years as a person who has attended only grammar school. It was therefore considered highly relevant that 26 percent of the white family heads but only 12 percent of their Negro counterparts have had some college training. Conversely, only 28 percent of the white family heads, compared with 55 percent of the Negroes, have had only 8 years of schooling or less.

Since education and occupation are closely related, occupational differences between Negro and white heads were also considered as a possible cause of the relatively low mobility of Negroes. In the adult population as a whole the proportion of movers was found to be about twice as high in the preceding 5-year period among family heads by managerial and professional workers as among those headed by operatives, laborers, and service workers. Negroes are found predominantly in the less mobile occupations: 51 percent of them are operatives, laborers, and service workers, and only 6 percent are professional workers or salaried managers. The corresponding percentages for white family heads are 19 and 18.

Persons engaged in professional, managerial, or skilled-technical work are highly mobile because their talents are in demand over a wide area and the compensation offered them makes moves practical. They sometimes may have to move across county or even State lines to find the most suitable job openings, and this movement often takes place within large companies that 'transfer' personnel from one location to another.

Since only a small proportion of Negroes are in highly specialized or skilled occupations, this reason for geographic mobility does not apply to most of them. Transfers, for example, accounted for 20 percent of all recent moves by white family heads, but only 5 percent of those made by Negro family heads.

The educational and occupational differences between the races, though they are quite marked, do not fully account for the observed differences in recent geographic mobility. . . When adults with the same education or occupation are compared, the Negro group still appears considerably less mobile than does the corresponding white group.[1]

---

[1] Marsh, Robert E. "Negro-White Differences In Geographic Mobility," Social Security Bulletin, Vol. 30, No. 5 (May 1967), pp. 12-13. These materials were included just prior to publication and they were not a part of the original discussion.

The importance of the impact on the individuals and families of the movers--that is, those who simply move and remain within the same county or the same community--has not been given very much research attention. In Figure 1, the extent of this type of mobility in relation to other mobility types is shown. Some time ago in an analysis of this kind of mobility, I had the following to say:

> It is recognized that the bulk of these movers remain within the municipal limits of the community or within the boundaries of the local county. Nevertheless, even under these conditions, problems of family adjustment as well as community problems may become very severe. Certainly some of these moves are the culmination of changes in socioeconomic status of the people involved--either up or down the scale. For some of the families, these moves may have significant traumatic consequences. In any event new patterns of social interaction must be established even though the move may be for only a very short geographical distance.
>
> At the community level many municipal as well as social problems may be associated with high rates of internal movement. Perhaps only a few examples need be cited to point up the potential magnitude of such problems. New residential areas may be developing and these residents are demanding all the usual municipal services including police and fire protection. Such movement may represent the invasion of one function by another functional activity, and as a consequence the taxation structure is disrupted for sizable areas of the community. Many tax-supported institutional facilities may be located in the wrong place as a consequence of such movement.
>
> For example, the school in one area of the community may have several empty classrooms while school facilities are greatly overcrowded or perhaps do not exist in some other sector in the same community. Such examples could be multiplied many times over, but the point is that the communities with relatively stationary populations are not without problems associated with high rates of internal population movement.[2]

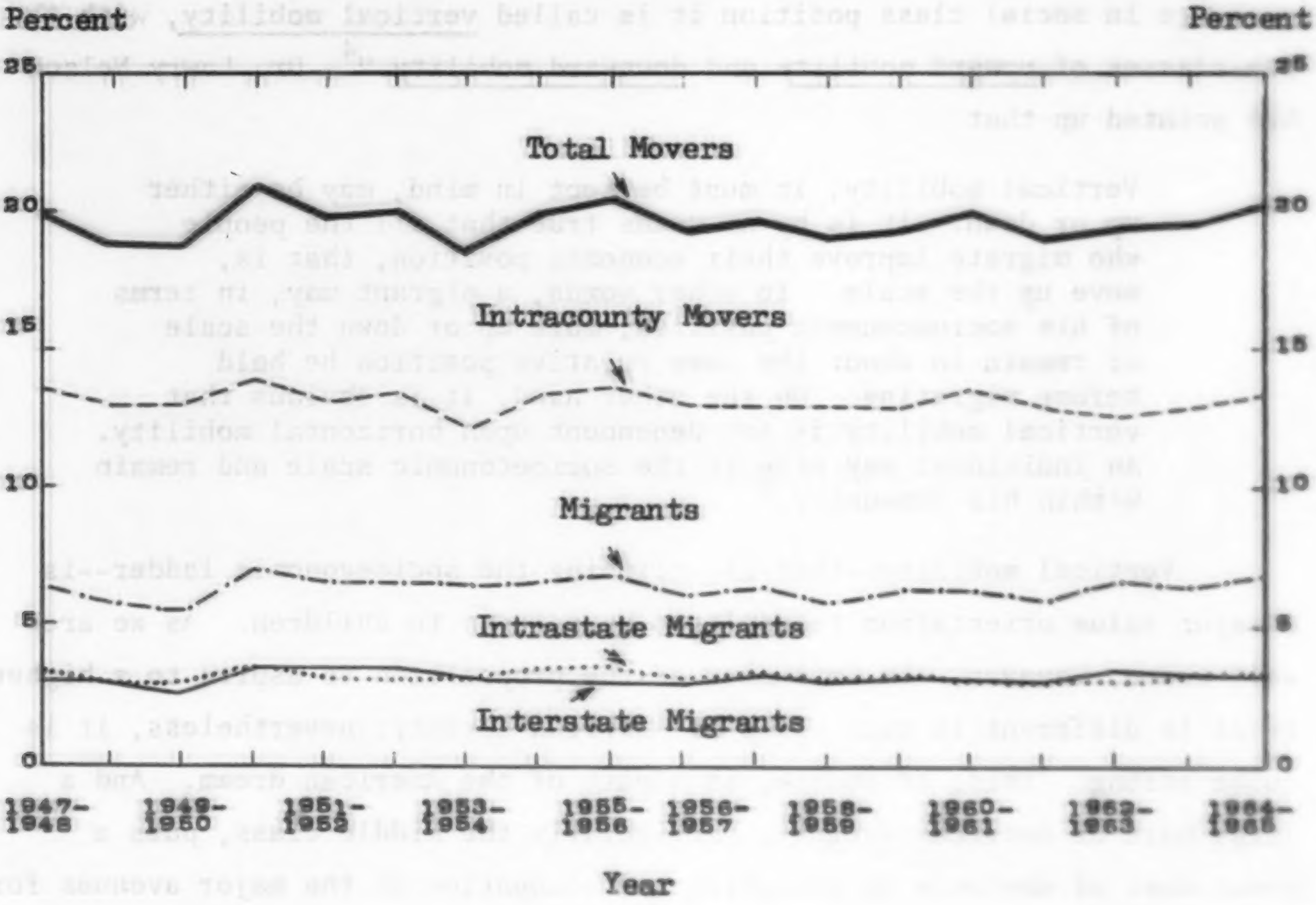
Perhaps, we might conclude this brief discussion of horizontal mobility (geographic movement) in these terms:

> Most migrations are a voluntary response to an expectation that removal will lead to an increase in

---

[2] Mayo, Selz C., "Communities with Stationary Populations," Chapter 8 in Family Mobility in Our Dynamic Society, Ames: Iowa State University Press (1965), p. 140.

Figure 1. Moves By Type of Mobility as Percent of the Population 1 year Old and Over, For the United States: April 1948-March 1965.



Source: Current Population Reports, Population Characteristics, Series P-20, No. 150, United States Government Printing Office, Washington, District of Columbia, April 14, 1966 overall gratification or a diminution of deprivation.[3]

As indicated above, the movement from one class or position in society to another is usually referred to as vertical mobility and, as most Americans think, vertical mobility might be paraphrased in terms of "upward and onward." There is an assumption, both implicit as well as explicit, for much of the new public education legislation that somehow there has been, or there is, a closing-up of the movement between classes or that the avenues, or escalators, are more closed than formerly. In popular language this is sometimes called hardening of the layers or hardening of the categories in our society. As has been pointed out, "If such a change in status and role does involve a change in social class position it is called vertical mobility, with the sub-classes of upward mobility and downward mobility."[4] Dr. Lowry Nelson has pointed up that:

> Vertical mobility, it must be kept in mind, may be either up or down. It is by no means true that all the people who migrate improve their economic position, that is, move up the scale. In other words, a migrant may, in terms of his socioeconomic position, move up or down the scale or remain in about the same relative position he held before migrating. On the other hand, it is obvious that vertical mobility is not dependent upon horizontal mobility. An individual may rise in the socioeconomic scale and remain within his community.[5]

Vertical mobility--that is, climbing the socioeconomic ladder--is a major value orientation transmitted by parents to children. As we are well aware, however, the intensity of the proposition to aspire to a higher level is different in each class of American society; nevertheless, it is quite strong. This, of course, is a part of the American dream. And a large part of American society, particularly the middle class, puts a great deal of emphasis on education and occupation as the major avenues for climbing the ladder. However one may view it, this is an important aspect of the dynamic society in which we live and much of the educational

---

[3] A Dictionary of the Social Sciences, New York: The Free Press, The Macmillan Company (1964), p. 428.

[4] Ibid., p. 434.

[5] Nelson, Lowry, Rural Sociology, New York: American Book Company, Second Edition (1955), pp. 228-229.

legislation of recent years has been in terms of efforts to move upward large segments of the American society. I assume that this is one part of the raison d'etre of this conference on the interrelationship of education, migration and mobility.

The Push and Pull Factors in Migration and Mobility

Dr. Lowry Nelson in his text, *Rural Sociology*, used the terms "push factor" and "pull factor" in the analysis of migration, particularly as it relates to the rural population, although, in my opinion, it has an urban connotation as well. The push factors, as he uses the term, originate and are at work in the area of origin or in the community in which the population exists. The pull factors, as he uses the term, are active in the communities of ultimate destination.

Dr. Nelson in his analysis of push factors uses the following categories:[6]

> Natural increase. A high rate of increase in the population of an area is likely to promote outward migration, provided there is not a corresponding increase in the resources. Such a situation creates population pressure, and while migration may not necessarily result, it sets up a favorable condition for it.
>
> Depletion or exhaustion of resources. This has special significance in those areas where communities are based upon mining of ore or the harvesting of the virgin timber crop. When these resources are depleted or exhausted, the population is stranded and must find alternative forms of employment in the area or migrate from it.
>
> Climatic fluctuations. Periodic drought and floods are familiar factors which induce migration of people.
>
> Social maladjustment. Finally, among the push factors must be mentioned those acute social maladjustments which occur from time to time throughout the world.

Among the pull factors--that is, factors operating in communities of destination for the migrants--Dr. Nelson discusses the following:

> Discovery and development of new resources. The settlement of the United States by European people during the past three hundred years is a prime example of the role of this factor. The availability of a vast area of a fertile land in a suitable climate set up one of the largest migrations in history.

---

[6] *Ibid.*, pp. 124-127

> New inventions and the industries built from them. The classic example of the role of this factor is the invention of steam and the rise in England of the factory system, which in turn provided jobs in the cities in which the factories were located. Similarly, in the United States during the decade of the 1920's the rapid expansion of industrial cities, based particularly on the manufacture of automobiles and electrical goods, attracted migrants in great numbers from the rural sections of the country.
>
> A favorable climate. The heavy influx of population to California and Florida from other parts of the United States has been the result of a favorable climatic condition: individuals have sought the areas because of health, old age, and a general desire to escape from more rigorous climatic zones.

Dr. Nelson, as are we, was fully cognizant of the fact that there are other factors and forces operating in both the push and the pull categories. In the work previously cited, p. 127, he lists several other factors: Technological changes may act as a push as well as a pull factor. Changes in the market place may result from lowered demand for products of one region and increased demand for those of another, and thereby set the stage for migration between regions. Public policies constitute another factor which influences the redistribution of the population. Finally, there are many personal factors which influence migration.

It should be pointed up, also, that horizontal movement has been used in another sense and may have a good deal to offer in terms of the context of this seminar: the horizontal movement in terms of the relation of one industry to another. Each bottom rung of employment has some kind of ceiling, both real and imaginary; thus, the worker may have to move horizontally to another industry in order to even increase his opportunity of additional upward mobility.

In the above discussion, and as has been the cause in most studies, the push and pull factors have been related almost entirely to horizontal or geographical movement. I believe that these concepts can be used to advantage in the vertical dimension analysis. We can look at the strength of the push factors not only horizontally but in terms of the vertical dimension also. I think we can look at the intensity or strength of the pull factors not only in terms of the horizontal aspect but also in terms of the vertical dimension as envisioned by the analysis of aspirations, and so forth.

Certainly within this context some communities and many schools have no alternative to that of promoting migration, that is, education for movement. It is within this context that education for social adjustment and education for salable skills become so terrifically important. Certainly the local community, particularly if its sources of employment are shrinking, cannot afford a system of vocational and technical education which will prepare our younger generation for those occupations in the community, many of which are disappearing. This is a battle, this is a struggle which many communities, and particularly rural communities, must face up to now and in the future. In many communities, if the authorities, both in terms of educational power and political power, are to attempt to prepare our young people for the future, they must prepare them to move, they must prepare them for salable skills in communities other than their own. This is a battle and it will ever be so because of the dynamic aspect, the dynamic operation, of American society both in terms of horizontal movement and in terms of vertical movement.

Institutional Framework and Mobility

As indicated above, institutions must serve societal purposes and functions. A national society must have its own system in its efforts to guarantee continuity. If a lag or a gap takes place in one institution, another institution must undergo alterations in order to assure survival. The institutions must serve the purpose of performing the functions allocated to each specifically, as well as supporting the necessity of survival and continuity. Institutions become, therefore, barriers that impede as well as escalators for mobility. Four institutions have been selected for this discussion. We shall attempt to show how they serve to facilitate as well as how they serve as barriers to both horizontal and vertical mobility.

The Family - The family performs, among many others, the function of placement; that is, the placing of new members of the group into their "appropriate" place in that society and especially in that community. As Broom and Selznick have pointed out: "The family status in the community is automatically assigned to its individual members, and this determines the individual's initial orienting status... This status determines how others are expected to act toward the individual until he changes or consolidates his status by his own actions. The family performs the function of induction into the society and helps to insure that no individuals are without assigned positions governing their interactions with others."[7]

In view of the primary group nature of the family, there develops a fairly close and intimate relationship between and among family members. It is this intimacy and closeness, this desire to remain together, which in many instances has the effect of keeping the group together longer than is either necessary or feasible for both the unit, the individual, the family, and society. The placement function carries with it, in our society at least, certain other elements which are important in terms of mobility. For example, data show very clearly that aspiration levels are associated with the position that the family occupies in the class structure of our society. The amount of knowledge concerning occupations and career opportunities is also related to the position in which the individual is placed by the family unit. For example, in a recent article the title carried the connotation in this form: "Career Choice: It starts at Home."[8]

Much of the recent emphasis on publicly supported vocational-technical education has been made on the basis of overcoming the family handicaps of placement in terms of aspirations and knowledge. The same could be said for the increasing emphasis on guidance and counseling in the public schools and, of course, especially at the high school level. The "head start" program is a good example of the publicly supported efforts to overcome the handicap of placement. It is also, on the other hand, a good illustration of an effort to equalize the environment at a given starting point for thousands of youngsters who have been handicapped by placement. At the same time, it must be recognized that the school system, given quality or inequality at the outset, is grounded upon the basic principle of making as unequal as possible every individual who enters the portals. In other words, as an institution the school system is obligated to create a situation of equality so as to enhance the potential of each student in the system.

---

[7] Broom, Leonard, and Philip Selznick, Sociology, White Plains, New York: Row, Peterson and Company (1955), p. 373.

[8] McArthur, Charles C., "Career Choice: It Starts at Home," Think, vol. 32, No. 2 (March-April, 1966), p. 15.

Individual differences, therefore, must get immediate attention and constant attention; and therefore, we deliberately create a system of maximizing inequality.

The Church - The church or the religious establishment may be considered as another of the major social institutions which has served the dual role of facilitating on the one hand and serving as a barrier to mobility on the other. As Dr. Nelson pointed out: "The church, like all social institutions, faces the problem of adapting itself to its social environment. This environment is in a constant process of change. Unless the church also changes with the larger culture, maladjustment occurs. The church, being an essentially conservative institution, tends to lag behind the changes in the culture about it."[9]

In terms of American society, promoting the work ethic as a good unto itself has, of course, been one of the major contributions of this institution in our society. The opposite of this orientation, of course, is that leisure or recreation often equated with idleness is evil. In this respect, therefore, this institution has performed the function of not only making everyone work but has also provided the motivation for work at any cost. Thus, we can see the elements of escalation for mobility as well as barriers to upgrading one's skills.

But it has promoted the general notion that the rewards do not have to be immediate. In terms of social mobility perhaps its greatest contribution was, or has been, an unanticipated consequence--the postponement of gratification. Here, too, it is important to recognize class differences. There are important class differences in terms of the learned virtue of gratification fulfillment: immediate versus postponement for greater gratification. This is an area in which the research data are quite clear. The immediate gratification is, and has been, characteristic of the "lower" classes in society while the ability to postpone gratification fulfillment has been more characteristic of the climbing and the middle class society.

Government: Local to National - I would like to broaden this institutional area to include the total community power structure. Within the context of this discussion here, too, we can recognize this institutional area as serving the function of facilitating mobility on the one hand and creating policies and decisions which serve as barriers to mobility on the other.

---

[9] Nelson, op. cit., p. 336.

In our society, government becomes much more than a social control institution and this is especially true in the broadened definition including the total community power structure. Policies at various levels of government and community power structure may facilitate growth and development and hence new opportunities for mobility. At the same time, policies at various levels may serve as barriers to mobility both vertically and horizontally.

The space orientation of power leaders at whatever level becomes extremely critical at this point. The lower power structure, for example, may be very reluctant to finance the program of education which is geared to preparing people for the total national market as contrasted with the local community market. At the local level, lip service may be given to creating an equal environment for the movement of young people; and yet at the same time, local policy may be such that many inferior programs are promoted year in and year out. These inferior programs, of course, become barriers to mobility and particularly to vertical mobility.

As indicated above, there is a battle, a struggle between the so-called local and the national programs and this in reality is a reflection of the total conflict--one geared to the local market and the other geared to the total national market. On every hand we see extremely low participation rates in such matters as voting on bond issues, in educational elections, and other aspects of citizenship participation. This conflict is especially acute in the smaller community or in the community in which the leadership is geared particularly to local aspects. The localistic leader will, of course, put most of his emphasis on creating a labor supply for the local market. The cosmopolitan leader, on the other hand, will recognize the defects of such a proposition and will, of course, put much of his emphasis on training people, and particularly young people, for the national market. The one attempts to maintain the population in the community with low levels of productivity while the other attempts to enhance the individual skills and salable skills so that the products may enter the total national market and thus move up the socioeconomic ladder. This discussion, of course, could go on endlessly, but we must recognize from the points made above that government, including the total community power structure, can become either the great facilitator of mobility or become the great stumbling block or barrier to mobility, both geographic and within the class structure.

Education and the School - Historically, in American society, education however defined has been the greatest and smoothest escalator to movement upward as well as outward. As indicated above, occupations which in turn are associated with educational attainment level are related to mobility both classwise and geographicwise. The upward ranges of occupation and the upward ranges of education are associated with rapid adjustment geographically and socioeconomically. Coupled with this has been the Horatio Alger, Jr., image of individual bootstraps. Lifting one's self, moving as required and as is necessary has become an American image. Education then becomes a shibboleth and a total faith.

But there are great barriers to actually entering this great adventure and we have enumerated many of these: age, sex, race, family placements, personality factors that we do not understand as yet, region and community norms. In this connection, it should be pointed out that vocational and technical education, particularly for the lower age levels (the high school population), does not have a good image in American society. I have faith, as I hope that you do, that just as the educational plant and establishment could play a major role in creating such an image that it can also play a major role in correcting such an image.

A Final Note of Summary

In our society each individual has the right of movement--movement across the landscape and movement through the class layers, upward and downward. He has the right to an equal opportunity at a starting point. Society, in turn, has the right and the responsibility to work with each individual so as to create as much inequality as possible. We strive toward creating such inequality, as much inequality as possible, within the framework of an equal opportunity and equal environment at some agreed upon, early-in-life starting point. Our new educational mission, both national and local, is predicated upon the seemingly incompatible aims and goals of minimizing differences of background environment at the starting point and at the same time maximizing individual inequalities of abilities and capabilities.

REPORTS OF SEMINAR WORK GROUPS

Introduction

The papers presented in the seminar and reported in the preceding section formed a substantial portion of the basis for discussion by work groups comprised of seminar participants. The work groups, names of members of each group, including consultants who also prepared the seminar papers, and a guide for work group activities are given on the following page. The remainder of this section is devoted to the reports of the work groups. The reports were presented orally in the seminar and taped for later distribution.

Group 1 - Manpower Supply

Al Ringo reporting:

I am going to indicate some of the available information on manpower supply by listing several sources and perhaps one or two other items. A few of the sources that were mentioned are: Labor Mobility in Six Cities by Gladys Palmer; Research on Labor Mobility by Herbert Parnes; and Inter-industry Mobility by William Miernyk. Other information that we talked about that is available in some states is reports from the state employment services. The latter is probably the most recent information available in most states on the number employed and the number of replacements needed. You can get from these reports an expansion of need. Of course the argument comes in that this information is based on employer opinion. In our meeting with Mr. Swerdloff he indicated that the United States Department of Labor will soon publish a report of employment trends, projections to 1970-75 and replacement needs.

We "rasseled" a little bit with terms, trying to get an understanding of even what our topic was all about. What is manpower supply? We did not understand this totally, and I think Bob Fearn helped us get a better understanding of the term. At this time we will have Doug Towne explain our understanding of the term manpower supply.

Doug Towne reporting:

As Al mentioned, we spent quite a bit of time on the meaning of manpower supply. We began with the idea that this was a number of people in the labor force. We were not satisfied with this; we found several short-

SEMINAR WORK GROUPS

No. 1	No. 2	No. 3	No. 4	No. 5
Manpower Supply	Manpower Requirements	Migration	Social-Psychological Dimensions of Occupational Mobility	Socio-Economic Mobility
Alexander Curtis Gilliam Ringo Towne Scott	Alicea - Colón Burgener Dost Hawkins Hoerner Runge Vercher	Cheshire Clary Kiefert McDowell Ponder Tinnell Woodin	Becket Brantner H. Gross N. Gross Householder Preston	Adams Baird Beavers Calhoun Ephraim Meaders Moeller
Fearn* and Rosen, Consultants	Swerdloff, Matthews,** and Weinstein*** Consultants	Lee, Hamlin, Consultants	Kuvlesky, Consultant	Mayo, Consultant
		Conference Rooms		
Neuse Room (Mezzanine)	Wake Room (Lobby)	301	601	Carolina Room

Suggested Outline for Group Activities

1. Research Findings
2. Gaps and Limitations of Research
3. Implications for Occupational Education
4. Researchable Problem Areas
5. Researchable Problems
6. Resources Available to Conduct Research (especially at the state-level)

* Professor Robert M. Fearn, Department of Economics, North Carolina State University
** Dr. Joseph C. Matthews, Jr., Department of Economics, North Carolina State University
*** Dr. Emanual Weinstein, U. S. Office of Education

comings, one being the fact that it is a rather gross number, a number that we cannot really work with in education. Another point is that it is hard to distinguish from the labor demand. We went next to the idea of the numbers in certain age groupings; we were not satisfied with this. We attempted to delineate some of the classes into which we might break down over-all manpower supply; we found classes such as sex, age, location, occupation, and things of this nature; yet, we were not satisfied with these. We proposed various definitions, for example, Rosen's that "manpower supply was equivalent to human resources;" Fearn mentioned that he would like to consider it as human capital; he also mentioned that it might be looked at as the number of people desiring work, or the number of people that voluntarily are forthcoming into the labor market at certain wage rates, or perhaps the number of people possessing skills that are desired by the labor market. In the short time that was allotted to us, we failed to come to a concensus on a general definition of manpower supply. We did, however, come to realize that manpower supply was not some static, independent entity. We came to appreciate, rather, the fact that manpower supply is a fluid, constantly changing process which is tied directly to many other factors. Among the more important of these factors, of course, are the manpower demands and especially, tied in with our over-all seminar here, the factors of mobility and migration. I think one of our major results was our appreciation for looking at manpower supply more as a process rather than as a concrete number or specific quantity. We felt satisfied in merely clarifying in our own minds two dimensions of manpower supply. (I might mention right here that we were a rather selfish group because we got a lot out of it and you are not going to get anywhere near what we did out of our consideration of manpower supply. We cannot convey to you what we accomplished, although we are trying). The two dimensions that we found important in manpower supply are, first, the quantitative, which we feel has received quite a bit of attention; but the second one, and perhaps more important for educators, is that of the qualitative dimension. On the quantitative dimensions, we have two subgroups. One is the shifts that are going on in the labor market. In subdividing this we have the new supply, such as the youth that is graduating from our programs and youth going into the labor supply from other programs. Another subdivision is people coming in from other countries. The second subgrouping under shifts in the labor market is the re-entry supply. These are women in their third career or beginning their third career, veterans coming out of the armed services and people who have retired from one occupation but do not wish to return completely. They are still capable and desire to contribute in some other occupation. The second quantitative dimension is the one we should perhaps be primarily concerned with. The qualitative dimension also has two aspects. One is the job performance requirement, that is, what types of skills, what types of knowledges, attitudes and abilities are required for specific jobs. The other is that of personal requirements. Here we are concerned with the items of the personality which contribute to the person's individual growth and maturity during his working life--such as work expectancy, job satisfication and things of this nature. I would like to summarize just briefly here and say that one of our major considerations was the fact that we have two ways of matching jobs and people. The one we usually think of is to change the people in order to meet the job requirements. This is our job in vocational education. But I think we must not forget the other possibility and that is to change the job requirements to meet the personal attributes. This can be done in many cases, and I do not think we have given that proper consideration. And, finally, I would just like to reiterate our conclusion that the manpower supply is more a process rather than any fixed or rigid quantitative aspect of labor supply. John Gilliam will now give the last part of our report which we spent probably the most time on -- suggested research topics.

John Gilliam reporting:

Our group identified several topics or several questions concerning research, and we came up with a list of twenty or thirty factors that we felt should be considered. This volume seemed to be a little bit unwieldy, so we got involved in trying to describe these items in terms of major groupings. What I propose to present to you is roughly eight broad categories of suggested research.

One category had to do with those factors that affect manpower supply. Within this category there could be virtually hundreds of items, but typical would be such things as earnings, skill, necessary prestige, age, government subsidies, security and etc. We felt we could come up with an endless list of factors affecting manpower supply, and these factors could be a broad topic of research.

The second broad area of research needed is the techniques or the measurement factors involved in labor supply. That is, how you go about measuring the factors that do affect manpower supply? We considered several possibilities in our discussions. One is the possibility of developing a manpower accounting system similar to our national income accounting system, and we just raised the question: Is this possible? Most of you are at least familiar with the general framework of our national income accounting system, and so we raise the question: Is it possible to think in terms of a manpower accounting system? Or, is it possible to view our labor supply in a kind of circular flow concept similar to the way in which we view the goods and services in our economy?

A third general area considered to be important and necessary in research is the information necessary for vocational educators to determine a wise educational direction. We felt, for example, that an area of research would be to determine the common denominators for various occupational families or occupations into families. And then, is it possible to determine if there are basic common denominators in each of these families? If so, can we identify these and weave them into our training or educational programs in order to make them more effective? Other related research questions are: The effectiveness of pick-up training as opposed to a formal kind of a training program; the effectiveness of retraining programs; and identification of those occupations that can be taught by the use of teaching aids. For example, we have long considered teaching aids in the teach-profession. If we could identify all the occupations in which aids would be valuable, then it would be possible to increase the supply and use of these aids.

The fourth broad area of research needed has to do with the identification of obstacles and impediments, and ways to overcome these, to free occupational movement. Within this area, we considered such things as labor unions, racial barriers, such things as day care centers for working mothers, and retraining programs. In other words, there is a whole broad category of obstacles or impediments to free occupational movement, and we could list an endless number of these, but we felt that in general this constitutes a broad area for research.

Another broad area for research has to do with measuring the contribution of outside training on the domestic labor supply, and in this category we are concerned with such things as the effect of migration. Someone said in our discussion that a major source of our doctors is Canada. Also, in this connection, we are concerned with the effect of military training programs on the civilian labor force. There is very little information on this, but apparently the military training programs are quite effective and certainly constitute an area for research.

The sixth area of needed research concerns how do we get optimum utilization from our labor supply. Here we were concerned with such things as the vocational agriculture people in a period of change. How do we get optimum utilization from these people? How do we get the optimum utilization from women in the labor force? It was pointed out that quite frequently we may have women who are perhaps chemists or physicists or the like who get degrees, may work for a year or two, who have families but several years later, when they get ready to go back into the labor force, they do not return to their professional fields. How do we get maximum utilization from these people? Are we going to have retraining programs? What about social science graduates? Dr. Rosen, I think, said that about five per cent of these people wind up in the profession for which they were trained.

Seventh, we need to have an evaluation of our vocational guidance programs in the development of labor supply. Within this broad category there are such questions as dropouts, the background of the guidance people themselves, and the performance of vocational education people in college.

And finally, in the eighth general category we just lumped everything else together. The omissions from this list certainly constitute a category.

To summarize quickly, I will recall the eight categories of needed research on labor supply: (1) those factors that affect manpower supply; (2) measurement techniques, how do you measure these influencing factors; (3) information for vocational educators; (4) identification of obstacles and impediments, to free occupational movement and means of overcoming these; (5) contribution of "outside" sources to labor supply; (6) the maximum or optimum utilization of the labor force; (7) evaluation of the vocational guidance programs; and (8) the catch-all category.

Group 2 - Manpower Requirements

Jeanne Dost reporting:

I want to first mention that I thought that we had an unusually good group. We were extremely fortunate in having three consultants with us:

Mr. Swerdloff, who was with us until Thursday evening; Dr. Weinstein who is from the United States Office of Education who helped to build the dictionary for occupational titles and has been one of those who has been very active in working on an international employment classification structure; and Professor Matthews from the Economics Department here on campus. Our group represented a cross-section of participants in this seminar. We had educators, social scientists, researchers, planners, and decision-makers. I think this perhaps in part explains why we had such an enthusiastic group. We had a very hard working group. In fact, I would provide a horseback estimate, using the term that engineers use, that we perhaps identified between thirty-six and forty areas of researchable problems and then attempted to delineate from these problem areas implications for vocational education. In fact, our group was so productive that I, in view of the short time for our participations this morning, am going to propose to the chairman that when I get home I write this material up and then send it to you to be added to this part of our presentation. I think that this will make the work of our group much more useful to you. We think that we were highly productive and rather than try to skim this and be unfair, I had rather submit an addendum to this report. (Editor's note: See addendum to this paper).

We had a dilemma in examining manpower requirements because it is extremely difficult to look at requirements, whether you define this as labor demand, occupational needs, analysis of occupations and job content, or work adjustment. It is very difficult to look at manpower requirements without looking at manpower supply. The interaction in the labor market between what I should call interaction of labor supply and demand is the problem of mobility, and so at times we felt that these two groups should have been together.

I want to quote from that classic study of the American way of life, Democracy in America, published in 1835 by Tocqueville - a quote which I think is most appropriate for our meetings here and focuses for you on what our group tried to do. Now I am quoting from Tocqueville:

> I have frequently remarked that the Americans who generally treat business in clear, plain language, devoid of all ornament, and so extremely simple as to be often coarse are apt to become inflated as soon as they attempt a more poetical diction...The cause of this may be pointed out without much difficulty. In democratic communities each citizen is habitually engaged in the contemplation of a very puny object,

> namely, himself. If he ever raises his looks higher, he perceives only the immense form of society at large or the still more imposing aspect of mankind. His ideas are all either extremely minute and clear or extremely general and vague. What lies between is a void.

And it is this void that our group went to the work session recognizing, I think, and our concern was what are the implications of the research which our discussions have told us about? What are the implications for research in vocational education. Therefore, I would, in general, conclude that the participants in our work group on manpower requirements attempted to delineate problems related to manpower needs having implications for vocational education. Now, some of these are quite general, but they do suggest researchable problems. Our discussion highlighted both general, area problems from which researchable problems can be delineated and then general problems which do not suggest research studies but are problems which must be resolved by vocational educators, and these are mentioned because perhaps in contemplating these kinds of problems the search for their solutions may suggest other research needs.

The various problems which we discussed naturally suggested the need to use all kinds, in fact, every available research resource. Also suggested along the way, and this will be included when we send the report to you, was on-going research in the various areas; and I think that, perhaps more than knowing what research has been done, it is well to be aware of what research is now going on in this area. Improvement of dissemination of this kind of information is going to reduce greatly the duplication of research.

I am going to outline some of the problems which we discussed to suggest to you what the material will be that you will be receiving later. One of these problems we discussed was how do workers in each occupation get trained. We spent quite some time on this, discussing various aspects of this problem, recognizing that the data are not available. There is an incongruity about this. We get very nice, detailed occupational classifications without any data to go with it. On the other hand, we get lots of data for these very broad employment classifications, the SIC groupings, and yet general and vocational educators have a real need for the data quantified in terms of occupations. Perhaps the skills surveys at the local level are going to help.

One problem which concerned us, and we discussed a number of different aspects of this problem, has to do with the delineation of the labor market, the circumscribing of what this labor market is that schools are training for. Not only did we discuss this in terms of spatial dimensions, but in terms of all the various other kinds of dimensions in which one can look at a labor market.

One problem which is generated by the development of techniques for projecting labor demands on the regional level from national data is the problem of the idiosyncrasies of some employers. Idiosyncrasies of employers, which may be idiosyncratic in terms of the national market, may be quite common in a given local labor market, which led us to ask the question: What are hiring prerequisites for a particular occupation or industry? This adds another dimension to our knowledge of the local labor market.

Another problem that we focused on was: Do workers in different occupations have different rates of mobility? We discussed the problem of how to cluster occupations for educational purposes. We asked ourselves: Can we find a new approach to measuring job clusters? We discussed some of the approaches which are being used, and we wondered perhaps if people are moving from one occupation to another and if this is quite a fluid movement. If it is, doesn't this suggest job clusters? Once we have sufficient quantified information about this subject, then, would we find that the occupational mobility was greatly reduced between some occupations? This would suggest that you could establish limits, and this would be an experimental approach to the development of job cluster curriculums.

One problem that we discussed was based on this assumption: What if all the data possible were available? Our friends from the United States Department of Labor tell us that the time is coming when all this information may well be available. In fact, different kinds of projection techniques are going to be perfected so that we will have all this information. We keep saying if we only had this information, we would do something. Now, if we accept the assumption that all this information will be available, are we doing enough about developing guidelines so that when we do get these data, say it comes in 1968, are we prepared to use it? Do we need to develop guidelines delineating educational requirements for job success as well as job content? How can we derive these guidelines from occupational requirements and from the data which will be available? Sometimes we, perhaps too easily, accept employment classifications that have been developed. It certainly would not be useful to develop other employment classifications without data. Since we do not have the data to go with employment classifications, we simply asked this question: Are there different ways of classifying employment distributions in order to experiment with different kinds of job clusters in education?

One problem which was brought out most forcefully throughout our discussion was on whether vocational educators should even worry about manpower requirements in educating people because the enrollment in vocational education courses is so small at present. We are a long way from preparing enough people for even the replacement needs in most occupations, and this of course points to the problem of ways of increasing enrollment in vocational education.

Another problem, and this is a practical problem, is that none of us in vocational education are aware of all of the kinds of publications that could be useful in vocational education. We said that vocational educators are not aware of the kinds of publications that could be useful to curricular design, and again we were discussing the problem of what are the implications for vocational education of the kinds of information we are getting out of research.

A problem that we examined was the time-lag problem. We spent some time discussing the time lags that are built into educational institutions. I think that our group felt that this problem of time lag was very important, particularly at the secondary school level.

Another aspect of the problem that we discussed was: Do vocational education teachers need kinds of certification different from teachers in general education? Again we were discussing the problem at the secondary school level, and I believe that several members of our group suggested that perhaps these teachers needed to spend their summers in industrial training, brushing up their skills rather than in going back to school and brushing up teaching methods. Let me just mention some of the problems here quickly. Where do vocational education graduates go to work? In which occupations? Are these the occupations for which they were trained? Or, are they related occupations? How long do they stay in these occupations? And, into what occupations do they move? This is the occupational dimension. Then we mentioned the spatial mobility problem: To where do they migrate? As a matter of fact, we mentioned the identification of where students migrate as being a possibility for one approach to measuring the labor market for which training is being provided by a particular school.

A number of general attitudes were important throughout the discussion in our group, and I would like to bring these to your attention because this is a kind of thing that is not easy to put down on paper. We recognized that there are a multitude of holes in our knowledge about vocational education, and we recognized that research is hard, slogging work and that not a single research study is going to fill up all the holes. In fact, in our discussion of problems we recognized that it may well be that only well-designed research studies which focus on a single and sometimes very narrow aspect of the unknown will provide vocational education with the kinds of valid and reliable research findings necessary to give a basis for rational decision-making. Vocational educators themselves, in cooperation with interested researchers, must open the door to the scrutiny which can be achieved by the use of the scientific method. Only through innovative and fearless evaluation of vocational education from within the vocational education institution can vocational educators insure themselves of increased respect and an active role in the development and planning of future vocational education programs. What I am trying to say here is that we felt that vocational education is going to be evaluated, and how much better it would be if this kind of research is initiated and comes from within vocational education itself, rather than from the outside, even though vocational educators are using the research sources of other disciplines. I hope I have been fair to our group in giving you the gist of what we discussed.

Addendum to Report, Group 2 - Manpower Requirements

Problems in Vocational Education Relating to Manpower Requirements

Work Group 2 identified the following problems relating to manpower requirements:

How do workers in each occupation get their training?

What are the characteristics of the successfully employed in different occupations?

What is the labor market for a particular school system?

What is the impact of the local school boards on vocational education program distribution?

What are the job vacancies in specific occupations and industries? What will be the replacement needs? What are the geographical locations of jobs by occupation?

What are hiring prerequisites for a particular occupation and for a particular industry? Are there significant differences from one geographical area to another?

Of the students in vocational education, what common characteristics determine which individuals will leave a region and which will stay?

How can workers' mobility be increased?

Do different kinds of workers have different rates of mobility?

Will vocational education be ready to translate manpower requirements into curricula?

> What are guidelines for curricular design derived from occupational requirements?
> Is it possible to estimate regional employment needs from national employment projections and then derive specific job information from the regional frame of reference?

How can follow-up surveys of graduates be conducted?

Are there skill and/or educational requirements for successful employment common to all occupations?

How can regional data indicating earnings levels for different occupations and industries be secured?

How can data about the stability of employment in different occupations and industries be secured?

Are there regidities in vocational education built in from older legislation? What is the impact of institutional rigidities on curricular development?

What are different ways to classify employment distributions to experiment with different kinds of job cluster education?

Can we develop a classification structure linking manpower requirements with vocational educational planning?

What kinds of education do workers have in different occupations between their formal training and successful employment in particular occupations?

What is the effect on the school drop-out rate of cooperative and on-the-job training programs?

How can vocational educational programs be evaluated in terms of private earning, rate of increase of earnings, and location of students' work places?

What specific ways and means can be found to increase vocational education enrollment?

Should vocational education teachers have the same requirements as other teachers?

> Should teachers use summers to brush up on their skills in industry?
> Should teacher institutes located in industry be encouraged?
> Should teachers receive special compensation for attending such a program?
> Will these teachers return to the school?

What are ways the school can plan a more active role in placement of graduates?

Is it feasible to work out in-school programs with the Employment Service in vocational guidance and placement?
Should the employment service and schools cooperatively provide regular workshops with guidance counselors in the schools?

Who uses the occupational handbook and how?

What determines a student's choice of courses in high school?

How can the disadvantaged and handicapped be defined and identified?

What are the costs of vocational education? What are returns to vocational education?

Should vocational education in the United States be planned on the basis of regional, national or global labor needs?

Should quality in vocational education be measured solely by employment rates of graduates?

How can quality of education be evaluated?

Given the inflexibility of the educational institution at secondary school level, and the inability of vocational education at this level to reflect changing labor market needs, how can vocational education help the educational system to retain the potential drop-out with immediate individual and family income needs?

What is the time lag for adjustment in secondary schools compared to community colleges or technical institutes? What are rigidities regarding changes in the allocation of resources to vocational education to meet skill and knowledge needs in our economy?

What is the mobility of vocational education instructors?

Should vocational education instructors be provided with a different kind of up-dating of his skills and knowledge as compared to instructors of college-bound students?

What kinds of vocational education do different groups seek during different periods of their lives?

To what extent is the content of vocational education courses used on the job by graduates?

On what basis are vocational education courses introduced?

What is the distribution of educational resources among different vocational education programs? What is the efficiency of this distribution?

Number and distribution of job vacancies?
Probable first-time earnings level?
Stability of employment?
Parents' desires?
Or a combination of these factors and others?

What are the educational requirements for different occupations?

Do vocational educators state problems so broadly that social scientists are not able to identify the research problems?

How can the productivity of scarce research resources available in vocational education be increased?

Will good general education encourage migration to areas where jobs and vocational education area schools are located? Or should area schools be where people are before they migrate? Which approach would increase the mobility of the labor force?

What is the distance most students migrate for first, second and third jobs?

In what kinds of courses are the various groups of employed seeking to continue their educational process?

Do vocational education planners know what the pattern of demand is for courses that women will seek for their third career? Will the women seek courses related to up-dating old skills and knowledge or will they want retraining for new kinds of jobs?

To what extent do manpower requirements in a region reflect defense expenditures and does planning vocational education for these labor needs mean that vocational education would not be prepared to meet the peacetime labor market requirements?

Given the rapidly increasing labor force participation rate for women, what are the educational and training needs for women wanting to reenter the labor market at ages 35 to 45? What age requirements exist for different occupations? What are the variables that discourage employers from hiring older or handicapped workers?

What is the nature and quantity of manpower needs by occupation?

Summary Statement

The multi-dimensional nature of vocational education problems mentioned above suggested to this seminar group that cooperative research programs among vocational educators and other social scientists should be expanded. The group recommends that a greater exchange of knowledge and increased communication among social scientists and vocational educators would be beneficial at the local, regional and national levels for identification and resolution of problems relating to vocational education.

Group 3 - Migration

Ben Tinnell reporting:

I think it is probably trite to say what has already been stated, that you cannot possibly tell the results of the things that we have received from these work group meetings. We had a little difficulty in keeping on the subject of migration. We would get on to something, and then the chairman would stand up and say, "Wait a minute here now," and he would try to get us back on migration. The several work group topics are so dovetailed it is very difficult to keep on one particular aspect of occupational mobility and migration. One of the things that impressed me is the various disciplines that are represented here at this meeting. I recall one of my college presidents at a faculty meeting stating that it is very difficult to get any group to agree on any one thing. And with the various disciplines that are here, I think that it is remarkable that we have not had more of what we call differentiation of opinion than we have. I heard a talk one time in Chicago in which a man told a story of two individuals who were neighbors for years, and they would constantly argue over the back fence, one on one side, one was on the other; they were always arguing. As years went by this did not improve at all; it continued until they got a little older, and their families were gone. Then they moved into one of these housing units, and they were again neighbors. This time they got along fine, no trouble at all. It was analyzed why they could not get along when they were neighbors living on property side by side: they were standing on different premises.

I want to mention right at the outset that Dr. Hamlin, one of our consultants, was quick to let us know that the term vocational education, as used generally, means occupational education, which includes occupational choice, competence and advancement.

First of all, let us review some of the facts pertaining to migration which Dr. Lee, another of our consultants, gave us at the outset of the seminar. These will serve as the framework for some of the comments that I will give later on. The volume of internal migration in the United States is quite astounding when you recognize that one out of four Americans changes his place of residence each year; this is quite surprising to me. One out of every fourteen moves from one county to another each year, and one in thirty moves from one state to another. You know I thought I was rather stable myself, but analyzing the twenty-two years of my married life, I find that I have lived in nine different houses. I know I have been in one place ten years and another place six years; that is sixteen years that we have lived in nine different houses and this brings on the next point: during a person's lifetime, the average American will live in fourteen different houses, so I see I have five more to go. He will live in five counties, and he will live in three states during his lifetime. I think these statements place emphasis upon migration: we are a mobile people, and this mobility, this migratory type of thing, brings about problems. This was the focus of our discussion group. Our group recognized that the relationships of this volume of internal migration to occupational education are many. Educators need to understand the impact of migration on education. We undertook to list and discuss some of the areas of occupational education that were directly affected by migration. Let me recall some of these areas and problems that we discussed.

We talked first about the curriculum and how it varied because of the problem of migration and how this is a problem that differs from place to place. We talked about Mississippi and the migration of Negroes from Mississippi to the Chicago area. Mr. McDowell, a member of our group from the University of Kentucky, told about the particular migratory problems in the eastern Kentucky area where there is a cycle that needs some study. This cycle relates to people leaving the eastern Kentucky area for a particular purpose, usually to obtain a better job and for financial reasons. They will go to the city, obtain this job and then return, probably for another reason. Usually the reason is associated with the mother of the family. They return to the area and it is discovered that there are problems involved in returning as well as in leaving.

Another educational problem related to migration is overall objectives of occupational education. Should objectives be modified because of this migration problem? Will we get problems of financing because of the modification of objectives? Should one area finance education and training for employment which will be another area? Of course, our consultants say yes to the latter question. There are, however, problems in financing vocational education locally in view of the fact that people who are trained locally are likely to secure employment elsewhere.

Another problem in education associated with migration is guidance and the selection of students in the vocational programs. How will this vary because of the migration problem?

Our next point centered around identifying gaps existing in research efforts. The first was the availability of factual migration data on local communities and states. We found out that there is generally a lack of factual information; there is much that we do not know. This has implications for suggested research problems in this seminar. Questions: What kind of education does a migrant need? Why do migrants return? What are the patterns of migration by industry? What should occupational education do to promote out-migration? What do employers want of migrant employees? These questions imply gaps in migration research. Migrants have a tendency to go to specific places within geographical areas, and I can recall people in the eastern Kentucky area talking about going to Cincinnati, and to "Kilgore Street." This is where they went; they went to Cincinnati, and they went to Kilgore Street and they knew so and so was already there. People have tendencies to migrate to certain areas of the larger cities.

Well, what about some other problems we talked about? What about the influences on migration? For instance, what are the influences of parents on migration. Another area dealing with the influences on migration was the aspiration of migrants. Is this a big factor in migration? We also talked about why vocational education teachers migrate. And, they do migrate. I would assume that the reason is better opportunities, better salaries, but this is not necessarily true. Dr. Lee told about a study that he was associated with in West Germany. They interviewed East Germans as they defected to the West. It was found that the reason many of these people left the East to go to the West was to get rid of their wives or to get away from family responsibility. Reasons for leaving were not wholly economic.

How can we effectively educate for mobility? Dr. Lee hit this point hard all throughout the discussion. He mentioned the need for a good general education. How can we educate a person for a specific job when it is generally known that he is going to change jobs several times. What type of education is needed for this kind of change? What type of general education is needed? What kind of vocational education? Mr. McDowell brought out the point that perhaps what is known today as industrial arts education is geared to change in terms of a general education for employment, but it is not directed specifically to a person's employment. What kind of occupational education is needed under conditions of job changes?

The next point deals with shortcomings of occupational education. Inequality of financial support is one shortcoming. What type of training is needed for today's occupations? It was mentioned several times that we are training for yesterday's occupations. What are we doing about today's and tomorrow's occupations? I know of two studies in industrial arts that are taking a long, hard look at what should be taught. I know of no major studies along these lines in occupational education. There are other shortcomings: we need more flexibility in programs; and we need regional, long-term plans. We need information for migrants on vocational opportunities. This is a shortcoming which could be dealt with by the state employment services. Reaching too few students is another problem, recognizing that we do not have the bulk of the students that we need in occupational education. How can we reach more students? The last problem I will list is the lack of communication of data available. Time and time again throughout our discussion something would come up and we would say "Well I did not know that, but why did I not have these data available?" We talk about making new studies; if we could just disseminate the information we have from the studies that already have been made, it would be very worthwhile. This is not a new problem as you well know.

It was decided by the group for me to present a proposal; whether this is in line or not, I do not know. The chairman of our group has directed me to do it, so here it goes. In view of the vital need for information on migration and its relationship to vocational education, we see a need for each state, as well as some regions and areas, to make their own studies. We see a need for a model which can be used to conduct studies of migration which can be replicated by researchers in various locations. We therefore make the following recommendations: That this seminar request the assistance of Dr. Everett S. Lee, consultant in our group, in instituting such a model study. This study would be jointly planned by demographers and vocational educators. It would be designed not only to highlight the most important implications of migration for vocational education and of vocational education for migration, but also to describe the source materials and techniques in such fashion that the study could be replicated in other states by persons without specific demographic training. It is further recommended that provisions be made for wide-spread circulation of this model study to vocational educators.

(Editor's note: At this point in the reporting period, a motion was made, seconded, and unanimously carried that the proposal given above be adopted by the seminar as a whole and that the seminar chairman be instructed to contact Dr. Lee relative to the proposal. Subsequently, under Dr. Lee's direction, a proposal was developed to conduct a model study of the relationship between spatial mobility and manpower development. The study, titled Spatial Mobility and Manpower Development, has been funded and is now being conducted by Dr. Everett S. Lee, Department of Sociology and Anthropology, University of Massachusetts)

Group 4 - Social - Psychological Dimensions of Occupational Mobility

Jim Becket reporting:

Since we discussed motivation in relation to occupational education and mobility, we wondered on occasion in our group if possibly a psychologist as a consultant might have been someone that we could have utilized in some of our discussions, as well as the other people that we did have. This is one criticism for the record.

We discussed many different things in our group. I am going to be quite general, quite brief on the items covered. We talked about some rather specific problems that we had and bantered these back and forth a little bit. We talked about the role of the institution in educating post-secondary, rural youth from deprived areas - what things they should have, and che type of course work, particular reference being made to their possible mobility. We talked about the role of the employers, not only from the standpoint of trying to get people for employment in the employer's view but also the employer's role in determining the course content. We talked about how the school could provide meaningful information on the world of work, and when it should begin? We talked about the relationship of sociological and psychological influences and pupil aspirations and expectations and the influence of the school on occupational choice. Dr. Kuvlesky, our consultant, developed a couple of models for us in this respect. These were some of the rather specific things that came up and were discussed. Now I would like to become a little bit more general.

We talked about a work role analysis at one point, and we had four parts of this analysis: task requisites or task requirements, skill requirements for the job, social skills and attitudinal requisites. I think you will agree with me that most of the studies that we have done on occupations and on occupational education, not all but certainly those that I am familiar with, have been directed toward just one part of this analysis and that is the tasks required and the skills required. This is what we as occupational educators have been interested in. It is true we have gotten responses to and comments on social skills, work habits, attitudes, and so forth; but as occupational educators we have not known what to do with them after we have gotten them. This, I think, points up, if nothing else, the importance of other disciplines and research from these disciplines and the application of concepts and research from other disciplines to problems in occupational education. Can we do this bigger job? (Here when I talk about we, I am talking about the whole complex of the people involved in and interested in research in the social-psychological area, as well as those of us who are interested strictly in occupational education as we have known it.) Can we do sophisticated, comprehensive studies on all four parts of the analysis in many occupations across our country? And after we have this information, can we then start to pull out the factors of a core of common elements found in all of these areas or in many of these jobs so that we can do a more efficient job in training programs that will take into account mobility? How soon can we start talking about these basic core factors in the school system? And, here again, we need some help from other disciplines. For example, at what minimum age can students utilize occupational information? It was my own personal opinion, at the time that I came to this conference, that I did not care what kind of occupational education aid the student received in school; I just wished he had some. I have been told here by several people that that's very inefficient. Well, in the first place I am not yet convinced that it is so inefficient, but I think these are some of the things that we need to start finding out and talking about; and then, if it is inefficient and if we can find better ways, why not make the changes. But let us go about it in terms of researching rather than hit and miss, shooting gallery-type operations. To my own particular situation - and we have heard several speakers at this conference who really have similar situations to mine - I am not too sure how inefficient my education was and in spite of the fact that I started out in a field different from the one I am in at the present time. I taught vocational agriculture for a while and now I am at the University. I realize that this is inefficient in terms of many different factors. On the other hand, I also realize it was quite inefficient in my own particular case to have spent so much time on a baseball field and on a basketball court, not only participating but watching. It was also quite inefficient to have spent a long period of time trying to find a woman that would have me. And yet many of these "inefficient" factors, when you take into account the whole person and, in effect, the whole society as well - I do not know whether efficiency in this particular aspect is something that is too terribly serious. But this is a personal opinion. If we had a complete analysis of an occupation, we educators could be a little bit better prepared to determine how we should present material, the techniques, etc. In terms of Dr. Kuvlesky's goal deflections (see Dr. Kuvlesky's paper in this report), could we do a better job of narrowing the gap between aspirations and expectations? We could also deal with Dr. Kuvlesky's concern for the social problems associated with this gap between aspirations and expectations. I think it is appropriate, and I think we need to take a close look at it, and he is doing that and others are doing it also, and not only the difference between aspirations and expectations, but the difference between expectations and what actually happens is receiving attention. This latter relationship is one that we have practically no information on at all, and again what kind of damage does this do to the person, and what kind of damage is done to society by the differences?

I would like to close with some of the same comments that have been made earlier in this reporting period. We spent quite a bit of time on specific problems that we had, and time and time again we were suggesting research that had already been done by others in the group or experimental projects that had already been carried on, or curricula that had already been developed some other place that we did not know about. It seems to me that this all comes back to Guba's paper (The Impending Research Explosion and Educational Practice, Summer Lecture Series, Kent State University, July, 1965) that was sent to us to be read before this seminar. I refer particularly to his plan for dissemination and to his discussion of the dissemination of research findings. I am not so sure but that what we need the most in vocational education right now is just research in the dissemination process. And after the dissemination phase, of course, comes adoption, and I think we need some research here as well. This is not a new field for research. There has been quite a bit of it done. On the other hand, there has not been a great deal of it done, it seems, in the field of education. How do we get school systems to adopt programs that have been developed somewhere else? I think if we had research data to present to school districts (rather than just a report written in some journal) that may not be a report of research, just a report on how it was conducted, maybe we would be able to get adoption at a faster rate. At any rate, I think that the dissemination process is something we need to take a real close look at, and I think that we need another factor in here that has not been emphasized here. It was talked about in Guba's paper, and it is that there has to be an in-between point some place - a point between the person doing the research and the person who is going to put it into effect. I do not think it is logical or fair to assume that the researcher is going to be able to implement his findings after he has done some good, sophisticated, top-notch research; and if he is qualified to do this type of research, he very well may not be completely qualified to translate it into the information that the high school or the elementary school teacher or somebody else on the firing line is going to be able to use. There needs to be an intermediary I think and I do not think we have it in education, at least in very many cases.

Group 5 - Socio-economic Mobility

Don Meaders reporting:

At this stage in the seminar it is rather difficult to find ways of stating what has been done or what has been covered without really restating many of the things that have been said earlier and very adequately this morning. First of all, I would like to express appreciation for the very fine way in which this seminar has been conducted. It has been rather informal and yet with a good deal of formality if this is possible, and I think it is. Within our group we seemed to find the opportunity to share opinions, to get information from consultants, to express biases and not get kicked out, and I think that those who made the arrangements for this seminar are really to be thanked for the way in which it has been structured and for the kinds of resource people who have been made available to us.

One of the things that we were concerned with in getting started as a group was really trying to come to grips with what is meant by socio-economic mobility. We had just finished hearing a paper on it and yet really to come to grips with what is meant by socio-economic mobility within the frame of reference of those of us in the field of education and vocational education was difficult. As we talked about this we recognized that there were certainly two aspects to whatever it is that we call socio-economic mobility: there must be something that hinders it and there must be something that may accelerate it, that may grease the way. So, for whatever it is we were going to talk about, we were already identifying that there is something about this that is desirable and maybe there is something about this that is undesirable. And being oriented primarily to vocational education programs, I think our group looked at this from the standpoint of ways that programs of vocational educational help youth and adults enter jobs, change jobs, and find satisfication from employment in their present community or in some other community. We began to put all this in a perspective then as having some application to the topic of socio-economic mobility. But, at the same time, we saw that there was another side of this coin and that is to help achieve the needs of employers for qualified workers. Workers are needed to provide the goods and services, whether these goods and services be within a village, within a metropolitan area, or whether they be goods and services deemed necessary for national defense, or what. In association with this general topic of socio-economic mobility, therefore, we saw the need to have vocational education help achieve the need of employers. We were not as systematic in our discussion obviously as some of the other groups; at least their reports indicate that they were much more systematic than we were in our discussions. I would like to present a chronology of some of the major points that we considered, and then to look at some of the concerns that we had.

For some reason, we started out looking at what can be done, or what is being done, in teacher education that is related to helping achieve socio-economic mobility, and I think we looked first to the question of to what extent patterns of geographical migration have implications for a national curriculum in any of the fields of vocational education or the preparation of vocational teachers. We were not agreeing that such a national curriculum of some kind is necessary, but we were saying in fact it should be considered. To what extent do these factors seem to have implications for providing certain commonness or generalness within a teacher education curriculum?

And then, what about the traditional characteristics of some of the existing vocational education programs as they may hinder or accelerate achievement in socio-economic mobility -- the scheduling of classes in the school? The practices for determining who should be enrolled in various classes in the schools? Are there some things about these practices which are either hindering or accelerating the extent to which socio-economic mobility takes place? What about the extent to which the subject matter is oriented to specific kinds of vocational education programs instead of to the subject matter of occupational education? To perhaps oversimplify this, I would illustrate it by pointing toward the extent to which instruction is centered around agriculture, agricultural technology, home economics technology, or industrial technology - a subject-matter orientation to the instruction - rather than an orientation to both subject matter and occupational education. We have seen repeatedly or heard repeatedly the comments about the need for persons who are going to succeed in various occupations to have more than some certain kind of technological competence. So we raised the question within our group of the extent to which subject matter orientation of programs is a hinderance or an accelerating factor in relationship to socio-economic mobility of the persons involved in the program.

Can we accept actual jobs available locally as a training means in vocational education? In other words, do we view the jobs that youth have in the summertime or after school as the kinds of work which they do rather than to see only distant jobs? Do we view these as an opportunity for helping students develop some of those competencies essential for further employment in other jobs or do we look upon their present situation as an end to their vocational education? And I think within our group we were concerned about using local situations as a means of accomplishing vocational education and not necessarily as an end of vocational education.

Another point concerns the grade levels at which programs have been identified and the extent to which students are deliberately or otherwise forced to make unrealistic choices in the courses they will take. Let us assume that a particular course is available in a particular school setting, and the arrangements for offering this course are well organized. To what extent do these either deliberately or otherwise force the student to make choices which are in effect hindering or accelerating socio-economic mobility?

I guess one of the things that bothered us about as much as any was the apparent gap between perceptions of problems by vocational educators and the perception of problems by social scientists, or, I should say, other social scientists. Perhaps this could be illustrated by the vocational educators' concern with policy, programs, courses, classrooms, teachers, schedules and operational items. To look at the other end of the continuum, if it is possible, the expressed concern of social scientists is for phenomena, theory, a clear design, and the structure of the knowledge within the discipline. This is not to say that what the social scientist is saying cannot be applied, but I think it is to say that the identification of the problem is quite different, and perhaps this is something that we need to be concerned about. I am reminded of the illustration that has been used many times about the blind men who were standing next to an elephant, and each was trying to describe reality, that is, what the elephant was like, and the one who happened to have a hold of the tail thought the elephant was like a rope, and you know the rest of the story - depending upon where they touched this particular reality, this is what they perceived the reality to be. So all I am saying here is that it appears to us that there is a gap between the perceptions of problems by vocational educators and other social scientists. We are all concerned with a problem; maybe it is the elephant, or maybe somebody says it is the donkey, I am not sure. I am not trying to get into politics here, but there is a difference in how we perceive this problem.

Now I would like to talk briefly about some four concerns that seemed to permeate much of our discussion. (If the members of my group do not recognize these in the frame in which I have placed them, they will have to submit a minority report or accept the idea that I have really put these through the mill and ground them out so that it no longer looks like T-bone steak, but it is just hamburger.) The concept of norms has been presented here from time to time in several ways, i.e., the number of moves that people may be expected to make during a lifetime, the norm in the attitude of people in the community toward something, the kind of education to be provided for persons of one sex or the other, the norm of the community in its attitude toward vocational education, or, generally, the norm as a point of reference in trying to describe situations. I would simply remind us all that norm has a central tendency, by definition, and it is static as of a point in time. Is a norm a good basis for trying to determine what should be? Do we inadvertently or otherwise try to use the norm: Do we try to do something to the individuals who are not at the norm in a program of some kind? Do we take the norm as the goal? In other words, do we look at every person as being expected to move so many times during a lifetime and do we then project this as the goal? Is the norm the basis for planning programs?

A second point, or concern, we had was that we felt that as vocational educators in this seminar that we have bent over backwards to hide some lights under a bushel. We have selected social scientists from certain fields to present a consistent, rational, conceptual framework for certain things - for socio-economic mobility, for looking at the social-psychological factors involved in occupational educational aspirations and expectations, etc. But wherein can we provide for a conceptual frame for vocational education? Or wherein did we provide for a conceptual frame for occupational education? Let me be specific. In terms of occupational education, Jones in his paper (See Dr. Jones' paper in this report) says that the function of occupational education is to match the supply of labor to the demands of industry. Dr. Hamlin stated before us that occupational education is education designed to contribute to occupational choice, competence and advancement. Dr. Lee in his paper on migration (See Dr. Lee's paper in this report) says that the best vocational education for youth is what is now called academic education and that specific vocational training is not for the child but for the adult who should be expected to train and retrain several times in the course of his lifetime. I submit that we have hid some lights under a bushel, that in going overboard to try to get the opinions, the best opinions, of some outstanding social scientists regarding what they believe is a consistent conceptual framework for their particular field in relationship to the subject at hand, we have not acknowledged that there may be some differences of opinion within their own disciplines. To what extent does Dr. Lee represent all of those who are concerned with demography? To what extent does anyone of the social scientists who presented his paper represent a consensus on what social scientists believe to be most important on this subject? We put an utmost faith in to one person in each of these fields, and yet we hide under a basket or maybe we did not want to acknowledge that there are some conceptual frameworks for vocational education. Maybe we still define vocational education as those programs for which federal funds are available. If so, we now have vocational education at the elementary school level, because federal funds are available at this level. We have a tremendous shift in points of view of some office educators who never previously considered themselves vocational educators but who may now have access to some federal funds for their programs. So, automatically, they are vocational educators by a particular definition. Really, what I am saying is that as we discussed these many problems in our group we found a considerable difference in the way we were using terms. We had no paper to refer to for a consistent, conceptual framework of what we mean by vocational education. Well, I have probably spent too much time on that point, but I had a feeling that it is important.

There appears to be a real dichotomy in the recommendations which are being made regarding what should be taught. I have described this, and we have discussed the extent to which the content for instruction may be identified as having an orientation toward vocations on the one hand, and the extent to which the content for instruction is identified within the structure of knowledge on the other hand. We see this in many places; we see it within vocational education at the present time in the development of something called a module, which is an attempt at structuring knowledge. Now, to the extent that the module concept is carried forward and somehow gets lost from the occupational connotation, it begins to fit in the end of the continuum of the structure of knowledge, and it has no more relevance to a particular occupation than the individual who receives it is able to make or the person involved in teaching it is prepared to make. And so this focus on what to teach that has come up from time to time has built into it some points which have not yet been carefully considered.

Finally as vocational educators, we felt as a group that it would be highly desirable to develop some kind of models to use for local and state groups who are concerned with strengthening and redirecting vocational education. In these models there should be some attempt to conceptualize what information should be gathered, who should be involved in determining what information should be gathered, and who should be involved in evaluating this information. We feel that other social scientists do have and must have a major contribution to make in the development of such models. For example, we might try to include in this model at least four points: one is an identification of need; another big area is identification of what is; then comes what is needed or what is the gap; and finally what is feasible? Within the matter of looking at need, it seems that again in looking over what has been done in the seminar here that we must look at need from the point of view of individuals, from the point of view of employers, and from point of view of economic growth, national interest, etc. From the standpoint of individual need, it appears, based on research presented and alluded to here, that this must be conceived in terms of preparation -- to prepare for, to prepare to enter into, to upgrade, to update, and to retrain. This is all within a framework of individuals. Individuals are important, and we need to somehow identify their concerns, their aspirations, their expectations. This applies both to high school and adult levels. The need from the standpoint of employers is for new, present and anticipated employees. From the standpoint of general welfare, we have concerns which are local, state, and national. And looking at the present situation of what is, we certainly need to build into the model what is being done within the school and outside of the school. In terms of feasibility, we probably need to build in such factors as the numbers of students now and anticipated in the future, the financial resources available at local, state and national levels, teacher resources, and programs available elsewhere. These and other kinds of factors that seem to me to be a part of a model that incorporates what research from many disciplines has to say should be considered as we try to plan for programs of vocational education in a given region.

I will stop at this point and say that it has been a very great pleasure to be here at this seminar. I enjoyed the group I was in, in spite of the fact that they rapidly conducted an undemocratic election of who should be chairman, but the small group process is always in need of great improvement. And so I find that this seminar will be of considerable value to me in the work that I am doing.

APPENDIX

PROGRAM

Research Seminar
Occupational Mobility and Migration

April 18-22, 1966
Carolina Hotel
Raleigh, North Carolina

SUNDAY EVENING, APRIL 17

6:00 - 9:00 Registration: Mezzanine

MONDAY MORNING, APRIL 18

(Convene in Carolina Room, Second Floor)
Chairman: Dr. H. G. Beard, Associate Professor, Departments of Agricultural Education and Sociology and Anthropology, North Carolina State University

9:00 - 9:15 Greetings

Dr. Selz C. Mayo, Head, Department of Sociology and Anthropology, and Acting Director, Center for Research, Development, and Training in Occupational Education, North Carolina State University

9:15 - 9:30 Introduction of Participants

9:30 - 9:45 Overview of the Seminar

9:45 - 10:00 Pre-seminar Evaluation

Dr. C. W. Hill, National Director of Research Seminars, Cornell University

10:00 - 10:15 A Proposal on Forming a Research Association

Mr. V. E. Burgener, Chairman Pro tem, AVERA

10:15 - 10:45 Break

10:45 - 11:30 The Need for Research and Its Utilization in Local, Regional, and State Systems of Education

Dean Rupert N. Evans, College of Education, University of Illinois

11:30 - 11:45 Reaction

Dr. H. M. Hamlin, Visiting Professor, School of Education, North Carolina State Univesity

11:45 - 12:15 Discussion

12:15 - 1:45 Lunch

MONDAY AFTERNOON, APRIL 18

1:45 - 2:30 Setting the Stage for a Study of Occupational Mobility and Migration

	Dr. E. Walton Jones, Associate Professor of Economics, North Carolina State University
2:30 - 3:00	Discussion
3:00 - 3:30	Break
3:30 - 5:00	Organizing Work Groups

TUESDAY MORNING, APRIL 19

Chairman: Dr. H. M. Hamlin

8:30 - 9:10	Manpower Supply in the United States
	Dr. Howard Rosen, Office of Manpower Policy, Evaluation and Research, United States Department of Labor
9:10 - 9:25	Reaction
	Dr. C. E. Bishop, Head, Department of Economics, North Carolina State University
9:25 - 10:00	Discussion
10:00 - 10:30	Break
10:30 - 11:10	Manpower Requirements by Industry and Occupation
	Mr. Sol Swerdloff, Bureau of Labor Statistics, United States Department of Labor
11:10 - 11:25	Reaction
	Dr. J. G. Maddox, Professor, Department of Economics, North Carolina State University
11:25 - 12:00	Discussion
12:00 - 1:30	Lunch

TUESDAY AFTERNOON, APRIL 19

1:30 - 2:10	The Role of Spatial Mobility in Occupational Change
	Dr. Everett S. Lee, Head, Department of Sociology, University of Massachusetts
2:10 - 2:25	Reaction
	Dr. C. Horace Hamilton, Professor, Department of Sociology and Anthropology, North Carolina State University
2:25 - 3:00	Discussion
3:00 - 3:30	Break
3:30 - 4:10	The Social-Psychological Dimensions of Occupational Mobility
	Dr. William P. Kuvlesky, Assistant Professor, Department of Agricultural Economics and Sociology, Texas A & M University
4:10 - 4:25	Reaction

Dr. L. W. Drabick, Research Associate Professor, Department of Sociology and Anthropology, North Carolina State University

4:25 - 5:00 Discussion

TUESDAY EVENING, APRIL 19

7:00 - 9:00 Individual Conferences by Appointment with Consultants

WEDNESDAY MORNING, APRIL 20

Chairman: Mr. Charles E. Lewis
Administrative Assistant, Center for Research, Development, and Training, North Carolina State University

8:30 - 9:00 Understanding Social Mobility

Dr. Selz C. Mayo

9:00 - 9:30 Reaction

9:30 - 10:00 Discussion

10:00 - 10:30 Break

10:30 - 11:00 Planning by Work Groups

11:00 - 12:00 Meetings of Work Groups (consultants available)

12:00 - 1:30 Lunch

WEDNESDAY AFTERNOON, APRIL 20

(Convene in Conference Rooms)

1:30 - 5:00 Meetings of Work Groups (consultants available)

WEDNESDAY EVENING, APRIL 20

7:00 - 9:00 Banquet: The Angus Barn

Address:

Dr. H. F. Robinson, Administrative Dean for Research, North Carolina State University

THURSDAY MORNING, APRIL 21

(Convene in Conference Rooms)

8:30 - 12:00 Meetings of Work Groups (consultants available)

12:00 - 1:30 Lunch

THURSDAY AFTERNOON, APRIL 21

(Convene in Carolina Room)

1:30 - 4:30 Meetings of Work Groups (Consultants available)

FRIDAY MORNING, APRIL 22

(Convene in Carolina Room)

	Chairman: Dr. H. G. Beard
8:30 - 9:00	Report from Work Group Number 1
9:00 - 9:30	Report from Work Group Number 2
9:30 - 10:00	Break
10:00 - 10:30	Report from Work Group Number 3
10:30 - 11:00	Report from Work Group Number 4
11:00 - 12:00	Post-seminar Evaluation
	Dr. C. W. Hill
12:00	Adjournment

BASIC SOURCES OF INFORMATION ON MANPOWER SUPPLY AND DEMAND

Selected Bibliography

Note: The principal government sources of information of general interest with respect to manpower supply and demand and illustrative publications are listed below. Detailed lists of publications may be obtained by writing directly to the separate agencies and organizations listed.

U. S. DEPARTMENT OF AGRICULTURE

Economic Research Service

Characteristics of U. S. Population by Farm and Nonfarm Origin, Economic Report Number 66, December 1964.

U. S. DEPARTMENT OF LABOR

Manpower Administration

Office of Manpower Policy, Evaluation and Research (OMPER)

Report of the President and A Report on Manpower, Requirements, Resources, Utilization, and Training; published annually (latest March 1966).

Report of the Secretary of Labor on Manpower Research and Training Under the MDTA; published annually (latest March 1966).

Mobility and Worker Adaptation to Economic Change in the United States, Manpower Research Bulletin Number 1 (July 1963).

Young Workers: Their Special Training Needs, Manpower Research Bulletin Number 3 (May 1963).

Unused Manpower: The Nation's Loss, Manpower Research Bulletin Number 10 (in process).

Training Disadvantaged Groups Under the Manpower Development and Training Act, Manpower Evaluation Report Number 1 (November 1963).

Manpower and Immigration, Manpower Report Number 4 (November 1962).

The Length of Working Life for Males, 1900-60, Manpower Report Number 8 (July 1963).

Formal Occupational Training of Adult Workers, Manpower/Automation Research Monograph Number 2 (December 1964).

Bureau of Employment Security (BES)

Employment Service Review, A Monthly Journal of Federal-State Employment Service Programs and Operations.

Special Industry and occupation studies, e.g.,

Aerospace Employment, Job Market Developments, Industry Manpower Survey Number 112 (May 1965).

Current Employment Market for Engineers, Scientists, and Technicians, published semiannually (latest October 1965).

Health Careers Guidebook (1965).

Bureau of Apprenticeship and Training (BAT)

Apprenticeship and Economic Change, Technical Report Number 3 (1964).

Training of Workers in American Industry, Report of a Nationwide Survey of Training Programs in Industry, 1962, Research Division Report Number 1 (1964).

The National Apprenticeship Program (1965).

Trends in Apprentice Registrations, 1941-1964, Bulletin Number 65-151 (June 15, 1965).

Bureau of Labor Statistics (BLS)

Employment and Earnings and Monthly Report on the Labor Force.

Occupational Outlook Handbook, published biennially, Bulletin Number 1450 (1966-67 latest edition).

Occupational Outlook Quarterly, published February, May, September, and December.

Special Labor Force Reports:

Out-of-School Youth, February 1963,Report Number 46 (November 1964).
Out-of-School Youth, February 1963--Part II, Report Number 47 (December 1964).
Labor Force Projections for 1970-80, Report Number 49 (February 1965).
Multiple Jobholders in May 1964, published annually (latest Report Number 51, March 1965).

Labor Force and Employment in 1964, published annually (latest Report Number 52, April 1965).

Employment of High School Graduates and Dropouts in 1964, published annually (latest Report Number 54, June 1965).

Employment of School Age Youth, published annually (latest Report Number 55, July 1965).

Labor Force Status of Youth, 1964, Report Number 56 (August 1965).

Why Women Start and Stop Working: A Study in Mobility, Report Number 59 (September 1965).

Work Experience in the Population in 1964, published annually (latest Report Number 62 in process).

Marital and Family Characteristics of Workers in March 1965, published annually (latest Report Number 64 in process).

Educational Attainment of Workers, March 1965, published annually (latest Report Number 65 in process).

Counselor's Guide to Occupational and Other Manpower Information, An Annotated Bibliography of Selected Government Publications.

Employment Outlook and Changing Occupational Structure in Electronics Manufacturing, Special Industry and Occupational Study, Bulletin Number 1363 (October 1963).

Women's Bureau

Fact Sheet on Trends in the Educational Attainment of Women (April 1966).

U. S. DEPARTMENT OF COMMERCE

Bureau of the Census

Decennial Census of Population Reports, especially reports on Detailed Characteristics of the Population, Bulletin P-C1 (1950) and PC(1)1D (1960).

Mobility of the Population of the United States March 1963 to March 1964, Current Population Reports, Series P-20, Number 141 (September 7, 1965).

School Enrollment: October 1964, Current Population Reports, Series P-20, Number 148 (February 8, 1966).

Fall School Enrollment (Advance data, October 1965 survey), Current Population Reports, P-20, Number 149 (February 11, 1966).

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education

Opening Fall Enrollment in Higher Education, 1965, published annually (latest OE-54003-65, 1966).

Earned Degrees Conferred (Bachelor's and Higher Degrees), published annually (latest 1962-63, OE-54013-63, 1965).

Summary Report on Bachelor's and Higher Degrees Conferred During the Year 1963-64, published annually (latest OE-54010-64, 1965). Preliminary report on earned degrees conferred.

Vocational and Technical Education, Fiscal Year 1963 (prior to 1963 this report was called Annual Reports of the State Boards for Vocational Education), OE-80008-63 (1964).

Digest of Educational Statistics, published annually (latest OE-10024-65, 1965 Edition).

Guide to Organized Occupational Curriculums in Higher Education, OE-54012-62 (1965).

Public Health Service

Health Manpower Source Books, see especially, Manpower in the 1960's, Number 18 and Location of Manpower in Eight Occupations, Number 19.

Health, Education, and Welfare Indicators, published monthly.

NATIONAL SCIENCE FOUNDATION

Scientific and Technical Manpower Resources, Summary Information on Employment, Characteristics, Supply, and Training, NSF 64-28 (November 1964). Contains bibliography.

Scientists, Engineers, and Technicians in the 1960's, Requirements and Supply, NSF 63-34 (1964).

Reviews of Data on Science Resources, published irregularly.

UNITED STATES SENATE

Nation's Manpower Revolution--Hearings before the Subcommittee on Employment and Manpower of the Committee on Labor and Public Welfare, United States Senate, 88th Congress, First Session.

MISCELLANEOUS

Teacher Supply and Demand in Public Schools, National Education Association, published annually (latest 1965).

Teacher Supply and Demand in Universities, Colleges, and Junior Colleges National Education Association, published biennially (latest 1963-64 and 1964-65).

The Personnel and Guidance Journal, published monthly September through June by American Personnel and Guidance Association, Incorporated (latest March 1966).

Clark, Harold F. and Sloan, Harold S., "Classrooms in the Military: Account of Education in the Armed Forces of United States," Bureau of publications, Teachers College, Columbia University (1964).

Eninger, Max U.,"The Process and Product of T & I High School Level Vocational Education in the United States," American Institutes for Research (September 1965).

Lebergott, Stanley,"Manpower in Economic Growth," McGraw-Hill Book Company, New York (1964).

Schwartz, Mildred A., "The United States College-Educated Population: 1960," National Opinion Research Center, University of Chicago (1965).

Sharp, Laure M., "Five Years After the College Degree, Part I, Graduate and Professional Education and Part II, Employment." (Forthcoming study prepared by the Bureau of Social Science Research, Incorporated for the National Science Foundation.)

Stein, Robert L. and Levine, Daniel B., "Research in Labor Force Concepts." Paper prepared for the 1965 Meeting of the American Statistical Association, Philadelphia, Pennsylvania (September, 1965).

CONSOLIDATED UNIVERSITY OF NORTH CAROLINA

WILLIAM FRIDAY, Ph.D.	President

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

JOHN TYLER CALDWELL, Ph.D.	Chancellor
HARRY C. KELLY, Ph.D.	Dean of Faculty
WALTER J. PETERSON, Ph.D.	Dean of Graduate School

CENTER FOR OCCUPATIONAL EDUCATION

Policy Coordinating Board

HAROLD F. ROBINSON, Ph.D., Chairman	Administrative Dean for Research
H. BROOKS JAMES, Ph.D.	Dean, School of Agriculture and Life Sciences
J. BRYANT KIRKLAND, Ph.D.	Dean, School of Education
FRED V. CAHILL, Ph.D.	Dean, School of Liberal Arts
ARTHUR C. MENIUS, JR., Ph.D.	Dean, School of Physical Sciences and Applied Mathematics

Heads of Participating and Cooperating Departments

EDGAR J. BOONE, Ph.D.	Adult Education
C. CAYCE SCARBOROUGH, Ed.D.	Agricultural Education
C. EDWIN BISHOP, Ph.D., 1957-1966	Economics
WILLIAM D. TOUSSAINT, Ph.D., 1966-	Economics
DAVID D. MASON, Ph.D.	Experimental Statistics
DURWIN M. HANSON, Ph.D.	Industrial and Technical Education
ROY N. ANDERSON, Ph.D.	Occupational Information and Guidance
PRESTON W. EDSALL, Ph.D.	Politics
HOWARD G. MILLER, Ph.D.	Psychology
SELZ C. MAYO, Ph.D.	Sociology and Anthropology

Center Administration and Research Personnel

JOHN K. COSTER, Ph.D.	Director, 1966-
SELZ C. MAYO, Ph.D.	Acting Director, 1965-66

Professors

ROY N. ANDERSON, Ph.D.	Occupational Information and Guidance
HERBERT M. HAMLIN, Ph.D.	Education
C. CAYCE SCARBOROUGH, Ed.D.	Agricultural Education

Associate Professors

HARRY G. BEARD, Ed.D.	Agricultural Education and Sociology
NORMAN M. CHANSKY, Ph.D.	Education and Psychology
LAWRENCE W. DRABICK, Ph.D.	Sociology and Anthropology
DONALD W. DREWES, Ph.D.	Psychology
LOREN A. IHNEN, Ph.D.	Economics
C. PAUL MARSH, M.S.	Sociology and Anthropology
TEXTON R. MIL[illegible] Ph.D.	Agricultural Education
CARL A. MOELLER, Ed.D.	Industrial and Technical Education
TALMAGE B. YOUNG, Ed.D.	Industrial and Technical Education

Assistant Professors

C. DOUGLAS BRYANT, Ed.D.	Agricultural Education
ADGER B. CARROLL, Ph.D.	Economics
ROBERT M. FEARN, M.A.	Economics
CHARLES I. JONES, Ed.D.	Agricultural Education
CHARLES H. ROGERS, Ed.D.	Coordinator of Services and Conferences
BERT W. WESTBROOK, Ed.D.	Education and Psychology
DOROTHY S. WILLIAMS, Ph.D.	Sociology and Anthropology

Instructors

CLEBURN G. DAWSON, M.Ed.	Sociology and Anthropology
ELIZABETH S. DRANE, B.A.	Education
WILLIAM E. FULFORD, JR., M.A.	Education
GEORGE EARL HOWARD, B.S.	Education
JAMES B. JONES, B.S.	Education
CHARLES E. LEWIS, M.S.	Sociology and Anthropology
JOSEPH C. MATTHEWS, JR., Ph.D.	Economics
GEORGE L. MORELOCK, JR., B.A.	Education
DOROTHY H. RINNE, B.A.	Education
RICHARD L. TEAGUE, M.S.	Sociology and Anthropology

Graduate Research Assistants

WILLIAM H. ADAMS, JR., B.S.	Agricultural Education
LEWIS C. FORREST, B.S.	Agricultural Education
MARIETTA A. FROMM, M.S.	Sociology and Anthropology
O. JAMES GAYLORD, B.S.	Agricultural Education
COY L. HUDSON, B.S.	Agricultural Education
THEODORE P. LIANOS, B.S.	Economics
SYLVIA R. McCRACKEN, B.A.	Sociology and Anthropology
LYNN E. ONDRIZEK, B.A.	Psychology
ROY S. PAINTER, B.S.	Mathematics Education
N. HAROLD ROSE, B.S.	Agricultural Education
JAMES R. SELLERS, B.S.	Occupational Information and Guidance

Assistant in Research

ROBERT C. EVANS, B.S.	Education

Clerical and Administrative Staff

DEBORAH T. ASH	Secretary
BETTY W. CREWS	Secretary
JUDY T. GAY	Secretary
SHERRY Y. HAMILTON	Secretary
GLENDA M. JONES	Statistical Clerk
ANITA H. MANN, B.S.	Secretary
LINDA H. RHYNE	Secretary
LINDA R. SCANNELL	Budget and Fiscal Officer
BETTY G. UTERMOHLEN, B.S.	Administrative Assistant
KATHY C. WOODSON	Secretary